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Warns of Growing Newsprint Competition

Former Newspaper Publisher Cautions Legislators and Newsprint Executives of Growing Menace To Canadian Newsprint Industry Through Increasing Foreign Competition—Bowater Deal Approved—Other News.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., March 13, 1939—A grave warning to legislators regarding their attitude towards the pulp and paper industry, and a grave warning to newsprint executives regarding their attitude in respect to the growing menace of newsprint from competitive sources, were delivered in the Quebec Legislative Council during the past week, following a motion by Hon. John Hall Kelly, of Grandville, calling for a far-reaching examination of the organization of the lumber and newsprint industry in the province and for the setting up of wage scales governed by conditions in the various regions.

The warnings came from Hon. Frank Carrel, of Quebec, former owner of the Quebec Chronicle-Telegraph, and one of the largest shareholders in newsprint concerns in the province.

Mr. Carrel emphasized the danger of government legislation that would harass the progress of the industry without taking into consideration all the elements which had to be watched. Such legislation would defeat its own ends, said Mr. Carrel. The other danger was that "if the master minds in this industry, the financial and banking geniuses who are directing it at the present time, fail to recognize the fact that unethical practices and unpopular rulings are producing restlessness among our people, and more so among our best customers, they, also, will be negligent in playing their part in the progress and development of the industry."

Suggests Consideration of Possible Investigation

As to the proposed investigation, he suggested it would be well to consider whether the industry should not be investigated with a view to prevent abuses in the future, and thereby guarantee the interests of all concerned. He did not believe Canada is in a position to dictate the price of newsprint to purchasers outside Canada without convincing such foreigners that we were asking only a fair and just price for the product.

"If we cannot do this, then it is an error to continue to give away our natural resources to a country that is building up (through reforestation) a growth of timber which may be sufficient, with the development of southern pine forests, to take care of a portion of their wants within the next decade or two," said Mr. Carrel.

Mr. Carrel referred to the fact that the Hon. Peter Heenan, Minister of Lands and Forests of Ontario, had only recently suggested more friendly relations be sought with purchasers of Canadian newsprint in the United States.

Competition of European Newsprint

"There is little use for the government of this province to establish a scale of wages for lumberjacks or any other interest engaged in making newsprint unless it investigates world conditions in this export industry," said Mr. Carrel. "To irritate our best customers by any ill-judged and unethical actions or the interference of governments, perhaps through misunderstanding or lack of information, is only going to lead our people down the road of ruin and desolation. Are you aware that overseas nations are now selling newsprint in the United States, and, it is said, have recently closed contracts for 200,000 tons at a price of $5 below that prevailing in the United States. How then could we meet this competition were the supply to increase to million tons in years to come?"

Mr. Carrel said that in two newspaper offices which he had visited in the United States recently he had found that one newspaper had bought 11,000 tons of this foreign newsprint, and the other 6,000 tons, and the quality was of high grade.

He only mentioned these facts, continued the speaker, "to show the competition ahead of us which should prompt us to act wisely and speedily if we want to save the situation. It is not hopeless but it will be if we do not heed the warnings that are being expressed by men who have the courage of their convictions."

There was no man in the Legislative Council, nor in any government of Canada, who was not earnestly desirous of seeing the newsprint industry progress in a manner that would benefit the whole country, said Mr. Carrel.

Industry Urged to Clean Own House

There were "black" pages in the history of the industry which those interested in it should make every effort to clean up, he said. "We cannot expect, as legislators, to adopt reforms in our present-day democracy solely through government legislation. The reformation must come from within, and not from without."

Governments can aid in a concerted movement

(Continued on page 31)

Engineers To Discuss Power Development

Further Expansion of Power Output On Wisconsin River Where Many Paper Mills Are Located, Will Be Discussed At Meeting of Engineering Society of Wisconsin — Celebrate Perfect Safety Period — Other News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., March 13, 1939—Further power development of the Wisconsin River, where numerous paper mills are located, will be the principal topic of discussion at a meeting of the Engineering Society of Wisconsin at Hotel Pfister, Milwaukee, Wis., Thursday, March 16.

The discussion is considered timely because the Wisconsin Legislature has before it a bill to abolish the Wisconsin Development Authority, a state corporation which had plans to build numerous dams and reservoirs with PWA and RFC financing to provide added and cheaper power on both the Wisconsin and Fox Rivers.

Thomas Utegaard, engineer of the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., who was one of the principal promoters of the WDA plan, will be one of the principal speakers. His subject will be "The Present and Proposed Development of the Wisconsin River." Other speakers will be: George P. Steinmetz, chief engineer of the Wisconsin Public Service Commission, Madison, Wis., on "A Century of Use of the Wisconsin River"; M. K. Kyler, engineer of the Wisconsin Valley Improvement Company, Wausau, Wis., "The Reservoir System of the Upper Wisconsin River", and Clayton N. Ward, of the engineering firm of Mead, Ward and Hunt, Madison, Wis., "Economics of the Proposed Wisconsin Hydro Project."

Numerous officials of interested paper mills were planning to attend.

Celebrate Perfect Safety Period

Nine hundred employes of the Kimberly-Clark Corporation's mill at Kimberly, Wis. last week celebrated the completion of 100 consecutive days without a lost-time accident. The mill operated a total of 540,000 man hours to accomplish this record.

Workers Complete 40 Years Service

Six workers at the Kimberly mill were featured in newspaper publicity last week for having completed more than 40 years of service with Kimberly-Clark. They are John Wachter, calender foreman, Joseph Van Roy, Ernest Jennerjahn, Charles F. Poppe, Chris Vander Velden and Albert W. Gosha. Four of them have had no accidents, and the other two had only slight injuries.

Swiss Paper Maker Visits Wisconsin

An interesting visitor at the Consolidated Water Power and Paper Company's mills at Wisconsin Rapids, Appleton and Biron, Wis. last week was M. Raoul Naville, of Switzerland, who inspected the Consolidated's process coating equipment. He is making a business and pleasure tour of the United States for two months, and expects to inspect a number of eastern mills before returning to Europe.

Mr. Naville is a son of M. Robert Naville, head of the Papier Industrie of St. Moritz, Switzerland. This company handles the continental rights to the Consolidated's process of coating papers directly on the paper machines, using it in two mills in France and one in Switzerland. The company has disposed of the Dutch and Italian rights, and is negotiating with five large German mills, according to Mr. Naville.

His mother's family has been connected with the paper industry since the 17th century. Noting the denuded forest lands in Wisconsin, Mr. Naville commented on the reforestation plan of Switzerland, almost as old as the country itself, by which 70 per cent of the pulp wood is supplied constantly to its mills.

Construction on New Power Plant Continues

Denial that the Green Bay and Mississippi Canal Company will obtain a power monopoly at Kaukauna, Wis., where a contract made by the company with the city affecting the building of a new power plant on the site of the former Patten Paper Company mill is in dispute, was made by attorneys appearing before the Wisconsin Public Service Commission at Madison, Wis. last week. The commission will review brief filed by the parties concerned and will announce its decision. Construction work on the new power plant is being carried on in the meantime.

Speakers at Engineers Club Meetings

Dr. O. Morgon of the National Aniline Chemical Company spoke on "Dispersing and Wetting Agents" at a meeting of the Chemical Engineers Club of the Kimberly-Clark Corporation March 7. Thirty attended, and a dinner was held at Conway hotel, Appleton, Wis. Carl Oberreich acted as chairman.

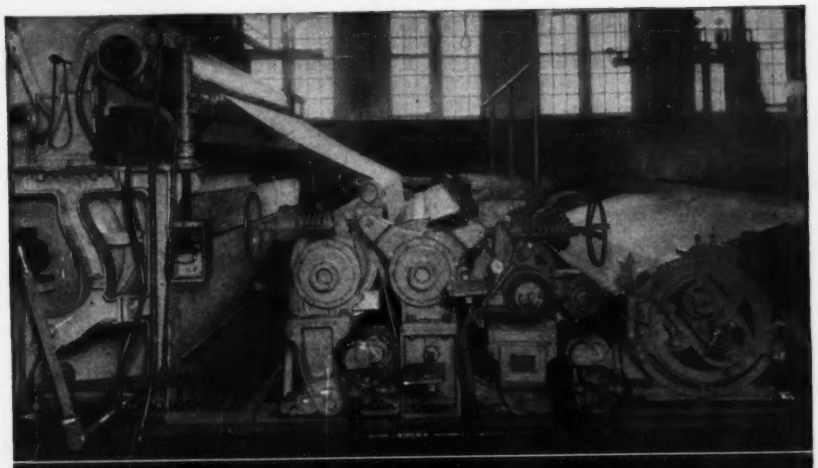
The Engineers Club of Kimberly-Clark met March 8 at Hotel Appleton, Appleton, Wis. and heard an address by Dr. H. F. Lewis, dean of the Institute of Paper Chemistry at Appleton. His subject was "The Effect of Pulp and Paper Making Operations on Wood Fiber." Stewart Neuville and Ted Perry were in charge of the program.

John L. Riegel Named Trustee

John L. Riegel, president of the Riegel Paper Corporation, New York City, has been named to the board of trustees of the Institute of Paper Chemistry, Appleton, Wis. The board met recently in New York.

Cameron Paper Co. Starts

MERIDEN, Conn., March 13, 1939—The Cameron Paper Company has opened offices and a warehouse at 637 Center Street here. Donald J. Cameron, who has gained experience in the twine and paper field in Meriden and Hartford will be head and general manager of the new concern. The firm will carry on a wholesale business in twine, wrapping paper and other types of paper products for stores and factories.



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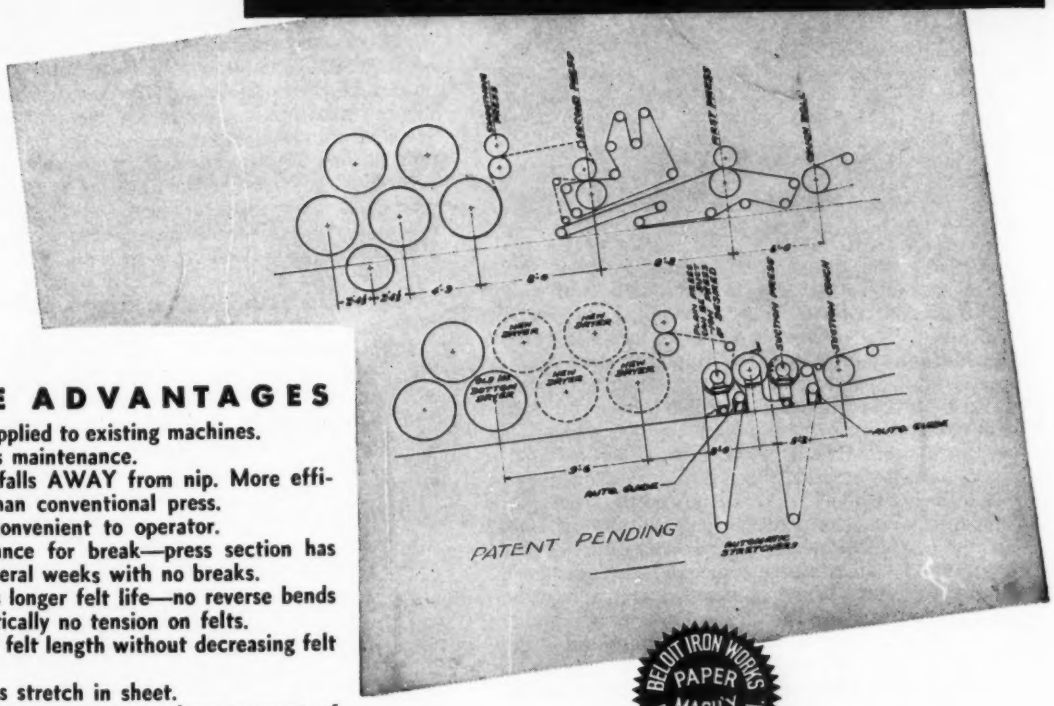

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7. Shorter felt length without decreasing felt life.
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Firm Market Heartens Chicago Paper Trade

Government Efforts and Signs of Improved Consumer Demand Reflected In Marked Firmness of All Grades of Paper—S. A. P. I. Appoints Committees—Tests of Paper Milk Containers Favorable—Other Trade News.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., March 13, 1939—While all signs point to general business improvement, Chicago paper dealers are likewise radiating a more impressive brand of optimism. Expected continued efforts on the part of the Government to engender optimism are already bearing fruit in this area where prices are firm and demand is just now beginning to show signs of material expansion. Even more important are indications on every hand that the top executives are becoming more and more determined to make 1939 a profit year. The marked firmness of virtually all markets in the face of ordinary demand is a genuine proof of this determination, say local executives. Meanwhile the kraft market continues to be in the most favorable position it has registered for some time, characterized as "really good" by local representatives. Book paper is firmly holding its advances of a few weeks ago, a situation which has had a salutatory effect on cover papers as well. Ground woods are in a firm position while optimistic reports also emanate from the newsprint firms here. Sulphite bonds and the entire bond and ledger market are showing fair demand though the actual demand is far over shadowed by the optimism for actual improvement in the near future. Waste papers are steady and have held gains made within the past two or three weeks.

Salesmen Appoint Chairmen

The Salesmens Association of the Paper Industry, western division, utilized its Monday, March 6, meeting to appoint committees for the forthcoming year and to do appropriate honor to several hard working chairmen. John Diggs, re-elected vice president of the division, announced the appointment of Jack Burrus of the Albemarle Paper Company as Chairman of the Educational Committee whose duties are to disseminate information and arrange educational programs. Ben Babbitt of the Brown Company retained, by popular vote, the position of Chairman of Social Events while Frank Mieners of the Filer Fibre Company became head of the most important Membership Committee which has made extensive plans already to broaden the membership representation. Johnny Johnson, Ward Paper Company, was appointed Chairman of the Trade Customs Committee which will continue its efforts to consolidate trade customs on sizes and other items. George Crafts was appointed Golf Chairman and promptly appointed Louis Ellis of the Northwest Paper Company as assistant chairman and scheduled a meeting for March 13 to develop a series of events in keeping with the successful outings of past years.

Jack Burrus, retiring President of the Association, was presented with a fine engraved silver tray by Graham Olson out of regard for his splendid services to the Association while Graham Olson, in turn, was presented a set of matched woods for his work as golf chairman with Ralph Burnett as the official donor. H. C. Engel, Central Paper Company, and Ben Babbitt were also presented with a special token of recognition for their work done during the year. Mr. Engel has been chairman of the membership committee for the past two years while Mr. Babbitt's handling of the social events rated him as a proper recipient of a gift from the appreciative group.

Tests of Paper Milk Containers Favorable

Recent testimony given in the current Chicago suit in which a dairy company is questioning the right of the Chicago Board of Health to restrict the sale of milk in paper containers continues to bring out information of general information to the paper trade. For example, S. E. Dean, representing the plaintiffs, reported this week that the sale of milk in paper containers is allowed in fifteen principal cities including New York, Washington, Philadelphia, Boston, Baltimore, Cleveland, Toledo, Dayton, Jersey City, Newark, Atlantic City, Los Angeles, San Francisco and Seattle. The source of paper used in making containers for milk has been the most recent subject of inquiry. Mr. Dean offered to send an inspector chosen by the city to watch the paper manufacturing. "Every time we buy paper for the containers", said Mr. Dean, "samples of it are tested for bacteria content at the Geneva experiment stations in Geneva, New York. We've had exhaustive tests made in the university laboratories. These tests have shown that our milk is less contaminated than milk in bottles. We have offered those tests to the city."

Junior Traffic Club Elects Officers

John Middleton, traffic manager of the Pioneer Paper Stock Company, has been elected president of the Junior Traffic Club, an organization of younger traffic executives which has done a splendid auxiliary job for the Traffic Club of Chicago. Other officers are: L. B. Freeman, Grand Trunk railway; William Noorlag, Chicago Association of Commerce and Jack Zorn, Chicago and Northwestern railroad.

Declines in Paper and Printing in Midwest

Some indication of the reaction which the paper and allied industries encountered after the first of the year is given in current Federal Reserve reports covering business conditions in Wisconsin, Michigan, Illinois, Indiana and Iowa. The 748 paper and printing firms reporting as of the week of January 15, 1939, showed 76,194 wage earners with earnings of $2,183,000. The wage earner total represents a 0.6 decline over the week of December 15 while the earnings total is 2 per cent under the figure for the month previous. Paper and printing were slightly better than the 1.4 per cent decline in number of wage earners for the industrial group and even more fortunate in comparison with 4.1 per cent decline in earnings for the total manufacturing ten groups.

Look For Action In Abitibi Reorganization

With Four Plans Considered, Reorganization Pot Appears To Be Boiling More Furiously Than Ever—One Plan, Which Endeavors To Forestall Foreclosure Proceedings, Will Be Presented To Security Holders Soon.

TORONTO, Ont., March 14, 1939—Plans for the reorganization of the Abitibi Power and Paper Company, Limited, with head office in Toronto, are proceeding and it is said that action will mature quickly to avoid foreclosure. It is indicated that all the new plans advanced recognize the equity of preferred and common stockholders. It also appears that the Ontario government is in favor of some such plan provided a general agreement can be reached and that foreclosure proceedings would be the last resort. Dispatch is necessary in advancing and ratifying a scheme inasmuch as strong bondholders groups are pressing harder for their rights under the trust deed. It is claimed that the Ripley committee and their associates while they are opposed to reorganization plans in principle, would find it expedient not to ignore them although they are still strong enough, it is contended, to obstruct any of the plans said to be impending if they wished to do so.

A Company With Mills But Without Limits

At the present time, under receivership, Abitibi Power and Paper Company is to an important extent a company with mills but without limits to which it has a legal claim. These timber limits are the property of the Ontario government and the latter can surrender them to the company under whatever conditions appear to the government likely to be best for the province. It is set forth that no sound reorganization can be effected without the cooperation of the government which owns the limits. Efforts are being made by those desiring foreclosure to agree now to surrender limits to the future purchasers of the company whoever they may be. The representatives of 10,000 holders of preferred and common stock shares think that decision on this point is not necessary now and should be left until the method of reorganization is decided. Decision now would be considered help given to those desiring foreclosure as it means that the government surrenders its power to affect the issue.

Interest in Reorganization Increases

With the presence in Toronto last week of J. P. Ripley and H. J. Symington, who are understood to favor foreclosure of the Abitibi Company, the reorganization pot appears to be boiling more furiously than ever. Visits to the provincial government were paid by the visitors and others and the question as to whether foreclosure or the Companies Creditors Rearrangement Act shall be used is coming to an issue. Hope for a friendly outcome has been strong and it is probable that foreclosure will only be practicable if the cooperation of the Ontario government can be obtained.

Four Plans Come to Front

Four plans have come to the front. One to forestall foreclosure proceedings will, it is reported, be presented to security holders in the near future. It is stated that the liquidator, R. S. McPherson, has a revised plan which is already in the hands of interested parties and may be announced shortly while another plan is nearing completion. The latter it is said calls for bondholders to receive the face value of amount of bonds plus interest accrued or $140 for each $100 of bonds, in first mortgage income bonds, with a small amount of stock. Under this plan the bondholders would retain control of the company, through a voting trust or some other method, for a pre-determined period or until certain conditions were fulfilled.

Two Other Schemes Near Completion

In addition, two other schemes are nearing completion which are reported closely alike. Under one plan it is proposed to give the bondholders $75 of their claim in first mortgage bonds, $25 in second mortgage bonds and $40 in preference stock for each $100 bonds, plus a certain proportion of common stock. The present holders of 7 per cent preferred stock would receive six new common shares for each preferred and holders of 6 per cent preferred would receive four share of new common stock. The present common holders would receive one share of new common for each six held. The fourth plan differs from this in respect to distribution to the various groups of security holders.

The Latest Development

The latest development in the Abitibi case is a statement issued by Hon. M. F. Hepburn, Premier of Ontario, to the effect that the new plan of the Bondholders Protective Association is in his opinion "eminently fair". Mr. Hepburn read an order-in-council, which was passed March 9 extending until April 1, 1940, the timber and water power concessions given to the Abitibi Co., under agreement of June 24, 1937 and said, "This has the effect of making available to any one, who with the approval of the courts, is successful in taking the Abitibi Co. out of receivership, the timber and water power rights necessary for the successful operation of the undertaking." The government further recommends that if a reorganization or rearrangement of the company or if a sale of its undertakings and assets as contemplated has not been effected by April 1, 1940, the provisions of any order-in-council passed in pursuance of this order may be rescinded upon six months notice in writing to the parties of the third part to the agreement dated June 24, 1937.

The bondholders' memorandum to the government stated that net earnings before depreciation and bond interest totalled about $13,000,000 for the six years. Depreciation at $1,700,000 per annum totalled about $10,000,000 for the six years, leaving approximately $3,000,000 available for bond interest during the years of receivership whereas the bondholders claim for interest is over $18,000,000.

Growing Optimism Reported in Philadelphia

Paper Industry and Trade In Philadelphia Area Estimate Business For First Quarter 25 Per Cent Above Last Year — Moore & White Co. Book Equipment Orders — Industrial Club To Hold Meeting — Other News.

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., March 13, 1939—Following a sharp decline in all lines of the paper industry here, the first decline since 1933, the industry is now beginning to work at a rate which indicates a recovery of a good portion of 1938 losses, according to executives this week. Current activity indicates that profits this year should at least offset the losses of 1938, leaving them, however, still below the 1937 level. It is estimated that the improvement for the first quarter in the paper industry is running about 25 per cent ahead of the corresponding period of 1938.

While in the waste paper industry, it is reported there is a much better tone and feeling all around, the slight stimulus experienced this first quarter of 1939 is looked upon as being more encouraging than significant.

Moore & White Book Orders

The improvement experienced in the paper trade here is reflecting itself very materially in mill equipment circles. Moore & White Company have booked orders for the following equipment: Alterations to the wet end section and also furnishing drive for wide high speed tissue machine for a nearby mill; 2 Moore & White patent 4-drum winders, one 100" face for the Castanea Paper Company at Johnsonburg, Penn., and one 96" face for Rolland Paper Company, Mont Rolland in the Province of Quebec, Canada. This same company is manufacturing 2 drum winders, one 94" face super calendered for S. D. Warren Co. at Cumberland Mills, Maine; one 156" face super calendered for Kimberly-Clark Corp., Kimberly, Wis., and one 156" heavy drum winder for Armstrong Cork Co., Lancaster, Pa., for winding saturated felt.

Industrial Club to Hold Meeting

The meeting of the Delaware County Industrial Club on Thursday of this week promises to be one of unusual interest. A question and answer forum will take place, and we give below a few of the questions that will be in store for them:

(1) How can we, as foremen, interpret to employees the best intentions of management when so many propositions are so worded and colored that they tend only to show management interest?

(2) How far should a foreman go in training himself to handle social problems involving the families of employees?

(3) If an employee has been discharged for infraction of a company rule which specified this charge as a penalty, is it wise to recall that man to work?

These are just a few of similar questions that will be assigned to Harry Dunning of the Scott Paper Company; B. J. Williams of the Westinghouse Electric Company; Calvin Fredericks of the Collins & Aikman Company; John J. Jones of the South Chester Tube Company, and Charles Cramer, of the Texas Oil Company.

The following information has been received on the club standing, as far as membership is concerned in the eastern Pennsylvania district: The Chester Club has 153 members, 130 of whom are foremen; in 115 in Norristown, of whom 106 are foremen; in Lancaster there are 157 members, 142 of whom are foremen. York holds the record with 708 members, 68 per cent of them foremen.

In the Manager's Weekly Letter, issued by the Typothetae of Philadelphia, Inc., W. A. Meeks, under the head "United We Stand—Divided We Fall", pays tribute to the Paper Trade Association of Philadelphia, in the following words: "The heading for this column preaches a sermon the truth of which has been demonstrated so often that it seems futile to say anything more about it, but the printers in Philadelphia do not seem to have grasped its value despite the various examples they have in allied trades organization.

"Take for example the Paper Trade Association. Some years ago it was possible for a certain type of printer to obtain almost unlimited credit for paper, and this class of printer was almost invariably a flagrant price cutter.

"The price of paper on any order for a case or more, if you were a clever buyer, could always be brought down to a below cost level, until the situation became very serious. The paper house was financing a lot of long term credits for stock sold and the printer who paid his bills promptly and did not cut prices could get very little business. The paper houses, however, woke up and paid a little more attention to organizing, with a result that was beneficial to everyone. Certain insolvent printers were either brought to a state of solvency or closed up, a reasonable credit was allowed, and a uniform pricing system established.

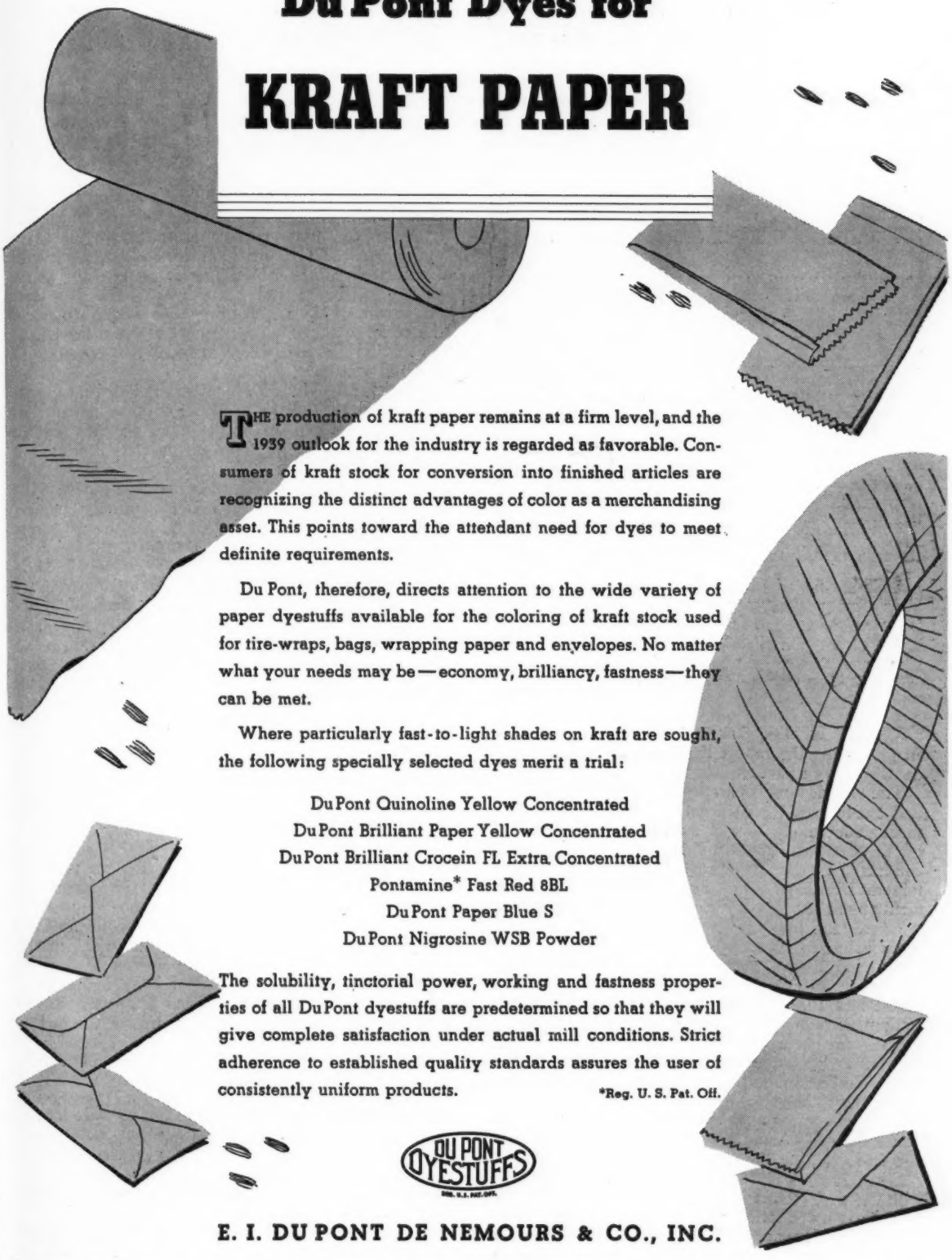
"This was undoubtedly an advantage to the paper house, and the printer knew when estimating, that his competitor was not buying any lower than he was or getting any better credit accommodation.

"The situation at the present time in the printing business is such that a strong organization is almost imperative. The Robinson-Patman Act, a national law, distinctly says that goods must not be sold below cost and that there shall be no discrimination in price between the different purchasers of commodities of like grade and quality. Every day this law is being violated by certain printers. The highly competitive job is almost invariably sold below cost for the purpose of building up a volume and the regular customer pays a higher price. This is one reason why so many buyers of printing think that there is no proper price level and that competitive prices must be had on everything.

"A strong organization could correct this evil more easily than the Paper Trade corrected many of theirs as soon as their organization became strong enough."

Du Pont Dyes for

KRAFT PAPER



THE production of kraft paper remains at a firm level, and the 1939 outlook for the industry is regarded as favorable. Consumers of kraft stock for conversion into finished articles are recognizing the distinct advantages of color as a merchandising asset. This points toward the attendant need for dyes to meet definite requirements.

Du Pont, therefore, directs attention to the wide variety of paper dyestuffs available for the coloring of kraft stock used for tire-wraps, bags, wrapping paper and envelopes. No matter what your needs may be—economy, brilliancy, fastness—they can be met.

Where particularly fast-to-light shades on kraft are sought, the following specially selected dyes merit a trial:

Du Pont Quinoline Yellow Concentrated
Du Pont Brilliant Paper Yellow Concentrated
Du Pont Brilliant Crocein FL Extra Concentrated
Pontamine* Fast Red 8BL
Du Pont Paper Blue S
Du Pont Nigrosine WSB Powder

The solubility, tinctorial power, working and fastness properties of all Du Pont dyestuffs are predetermined so that they will give complete satisfaction under actual mill conditions. Strict adherence to established quality standards assures the user of consistently uniform products.

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Organic Chemicals Department · Dyestuffs Division · Wilmington, Delaware, U. S. A.

Financial News of Pulp and Paper Industry

Robert Gair Co. Reports Loss — Kimberly-Clark Net Income Declines —$383,423 Profit For Rolland Paper Co.—Dexter Mill Receivership Decision To Be Reached This Week—Increased Income For Schumacher.

NEW YORK STOCK EXCHANGE

High, Low and Last for the Week Ending March 15, 1939

	High	Low	Last
Armstrong Cork Co.	48½	47	47
Celotex Corp.	17⅞	15¾	16¾
Celotex Corp., pf.	72½	71	71
Certain-Teed Products Corp.	11¾	10¾	10¾
Certain-Teed Products Corp., pf.	46¼	43	43
Champion Paper & Fibre Co.	28¾	27	27
Congoleum-Nairn Co.	28¼	27¼	28¼
Container Corp. of America	15⅝	14¼	14½
Continental-Diamond Fibre Co.	8⅝	7½	7½
Crown-Zellerbach Co.	14⅜	13⅛	13½
Crown-Zellerbach Co., pf.	88½	87	87
Flintkote Co.	29⅞	28	28½
Robert Gair	3½	3¼	3⅜
Robert Gair, pf.	12⅛	11	12⅛
International Paper & Power	13¼	11⅝	11⅞
International Paper & Power, pf.	47¼	42½	42¾
Johns-Manville Corp.	98½	93	93
Johns-Manville Corp., pf.	130	129	130
Kimberly-Clark Corp.	26	25	26
MacAndrews & Forbes	31¾	30½	31½
Masonite Corp.	54¾	53½	53½
Mead Corp.	12	11	11¼
Mead Corp., pf.	69⅜	68	68
Paraffine Companies, Inc.	56	55	55
Paraffine Companies, Inc., Pf.	102	102	102
Ruberoid Co.	29	27¾	27¾
Scott Paper Co.	50⅛	49½	49⅞
Scott Paper Co., Pf.	115½	115½	115½
Sutherland Paper Co.	30½	29¼	30⅛
Union Bag & Paper Corp.	11⅛	10½	10½
United Paperboard Co.	6½	6	6
U. S. Gypsum Co.	108	102	104
U. S. Gypsum Co., Pf.	180	179	179

NEW YORK CURB EXCHANGE

High, Low and Last for the Week Ending March 15, 1939

	High	Low	Last
American Box Board Co.	8¼	7⅝	7⅝
Brown Co., Pf.	17	16	16
Great Northern Paper	37⅞	37¼	37¼
St. Regis Paper Co.	3	2¾	2¾
St. Regis Paper Co., Pf.	54	53	54
Taggart Corp.	4¾	4½	4½

Robert Gair Co. Losses $23,388

The Robert Gair Company Inc. report a loss of $23,388.49 for the year ended December 31, 1938. In presenting the report E. Victor Donaldson, president, writes in part as follows:—

The fabricating operations at Cleveland, which had been carried on since their acquisition in 1936 through a wholly owned subsidiary, were acquired by the Company on March 31, 1938, and are now conducted as the Cleveland Cartons and Ohio Containers Divisions. The experimental and development plant at East Braintree, Mass., producing gummed tape, building papers and specialties, and the other assets of Specialty Converters, Inc. (a wholly owned subsidiary) were acquired by the Company on December 30, 1938. The sheet plants at Shelton, Conn. and Providence, R. I., have been closed, the equipment removed to other divisions, and these territories are being served directly from the New London and Newton plants of the Company. Owing to the decline in pulp prices and the limited output of the plant, the groundwood mill at South Windham, Maine, cannot, under present conditions, operate economically. Arrangements are now being made for discontinuing the operation.

Since January 1, 1939, the Company's agreement with North Carolina Pulp Company has been revised on a basis more satisfactory to the Company.

Effective January 1, 1939, Norman F. Greenway, who for several years had been Resident Manager of the Piermont Division, was elected a vice-president and general manager of the company. On January 13, 1939, Mr. George E. Dyke was elected a member of the board of directors, and added to the executive committee.

Gair Company Canada Limited operated at a small profit during the year, the early part of which was handicapped by improvements and realignments of operations. The bank loan of $400,000, incurred for improvements in 1937, was reduced during the year to $325,000 and a further $25,000 has since been paid. It is as yet impossible fully to appraise the effect of the trade agreement between the United States and Canada, which includes the movement of paper products.

The Company's bank loan was reduced during the year from $2,000,000 to $1,525,000, by payment of $275,000 obtained from the initial payment by the St. Joe Paper Company on its purchase, on June 1, 1938, of the Thames River property, and $200,000 from current funds. Further payments of $25,000 per month were made on this loan during January and February, 1939. To provide for the temporary cash needs of the Company, this loan was increased to $1,625,000 on February 23, 1939, of which $350,000 will mature during 1939 and the balance in the first quarter of 1940. This loan is secured by the pledge of $3,400,000 of the Company's 40-Year 6 Per Cent Income Notes, the $800,000 10-Year 4 per cent note of the North Carolina Pulp Company, due January 1, 1948, and substantially all the capital stock of Gair Company Canada Limited.

The weekly tonnage manufactured during the first two months of 1939 approximately the higher level of the last six months of 1938. Prices, however, remained unsatisfactory, although currently there are indications that the sustained demand for paperboard products is tending to support an improved price structure.

Kimberly-Clark Nets $1,894,641

[FROM OUR REGULAR CORRESPONDENT]

NEENAH, Wis., March 13, 1939—Kimberly-Clark Corporation, in statements issued last week, reported 1938 net income at $1,894,641, a drop of $465,776 from the 1937 figure of $2,360,417. After preferred dividends, these earnings equaled $2.66 per share of outstanding common stock, as against $3.61 in 1927 and $1.76 in 1936.

Net sales totalled $26,555,730, compared with $27,249,788 in 1937. Cost of sales were $21,679,178 compared with $21,538,316, and gross profit was $4,876,552 against $5,711,471. Selling, general and administrative expenses amounted to $1,999,802, compared with $1,929,696 in 1937. Losses of $156,645 were reported for the William Bonifas Lumber Company, a wholly owned subsidiary, and the North Star Timber Company.

Preferred dividends paid during the year totalled $597,780 and common dividends were $488,173.

Current assets were shown as $11,022,410 on December 31, against current liabilities of $2,966,843. This compares with current assets of $10,966,949 and current liabilities of $3,545,614 on December 31, 1937. Assets include $1,632,420 in cash and $1,166,812 in government bonds. Liabilities include $560,000 in bonds to be paid during the year.

Rolland Earns $383,423

MONTREAL, Que., March 13, 1939—The annual report of the Rolland Paper Company, Ltd., of Montreal, shows that operating profits for 1938 amounted to $383,423, a reduction of about $50,000 from the 1937 figure and net earnings after all charges are shown down $20,000 at $126,930. After dividends and adjustments surplus as at the end of last year was lower by about $26,000 at $284,576.

Bank loans which amounted to $100,000 on the 1937 balance sheet have been eliminated; cash is shown up at $48,452 from $15,199; receivables up slightly at $231,653; investments down $82,000 at $216,000; while inventories are lower by $138,000 at $596,008.

The report states that capital expenditures on the company's mills at Mont Rolland and St. Jerome during 1938 amounted to $44,327 and that the mills were maintained in an adequate state of repair. Retirement of $75,000 of 3 per cent serial bonds on maturity, November 1st, reduced total bonds outstanding to $2,000,000.

Johns-Manville Reports Profit

The Johns-Manville Corporation and subsidiaries reports for the quarter ended December 31, a profit of $597,833 after taxes and charges, or 54 cents a share on 850,000 shares of common stock; $859,653, or 86 cents a share in the fourth quarter of the preceding year and $882,366, or 89 cents a share in the third quarter of last year. Year 1938, profit $1,455,302, or $1.09 a share; $5,451,844, or $5.80 a share in 1937. Sales $46,890,148, against $60,173,392 in 1937. Balance sheet items as of December 31, compared with the preceding year, follow: Cash $8,627,787, against $8,670,758; receivables $4,354,352, against $4,896,418; inventories $7,491,143, against $9,218,793; current liabilities $3,055,345, against $4,043,181.

American Box Board Nets $50,821

The American Box Board Company reports as follows for the year ended November 26: Net profit, $50,821, equivalent to 44 cents each on 113,965 shares of 7 per cent cumulative preferred stock, compared with net profit of $356,892, equal, after preferred dividend requirements, to $2.21 each on 125,363 shares of common stock in year ended November 27, 1937.

Fort Wayne Increases Shares

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., March 6, 1939—Officials of the Fort Wayne Corrugated Paper Company, Fort Wayne, Ind., have filed papers with the Indiana secretary of state amending the corporate financial structure to increase the capital stock to 250,000 shares having a declared par value of $10 a share.

Receiver Likely for Dexter Mill

DEXTER, N. Y., March 13, 1939—An order to show cause why a receiver should not be appointed to take charge of and resume operations at the Dexter Sulphite, Pulp and Paper Company has been granted by Supreme Court Justice Frank Cooper. Whether a receiver or receivers are appointed will be determined this week after hearing arguments on the motion. Application for the order was made recently by Attorney Raymond Cornwall, it being the outgrowth of a bill of complaint in an action brought by the Federal Reconstruction Corporation against the Dexter Sulphite, Pulp and Paper Company and its stockholders. The bill of complaint has been filed with the federal district court and a summons has been issued by the clerk of that court for service upon the various 64 defendants named. The purpose of the proceedings is to save the company for the benefit of the several hundred employees and the creditors. It is the direct result of the efforts made by Attorney Cornwall several weeks ago to prevent liquidation of the company's assets and the final closing of the plant. This week opportunity will be given by the court for the presentation of arguments against as well as for the appointment of a receiver or receivers clothed with authority to continue the operation of the mills. If the motion is granted, a receiver or receivers will be appointed with authority to continue operations and the order will enjoin and restrain the company and its directors from interfering in any manner with the receiver or attempting to liquidate or dissolve the Dexter Sulphite, Pulp and Paper Company. The so-called income debentures held by the banks and others are not as yet due and payable and therefore it is believed that these holders are not necessary parties to the action. Attorney Cornwall stated that he wished to make it clear and beyond misunderstanding that this action is commenced by the Reconstruction Finance Corporation as plaintiff for the purpose of continuing operation of the mills and distinctly not for the purpose of closing the mills, as is customary in most receivership proceedings. The action and proceedings is the result of the conference held by all parties with the RFC late in January.

Schumacher Reports $112,615

The Schumacher Wall Board Corporation reports as follows for the nine months to January 31: Net income, $112,615, equal after preferred dividends, to $1.06 each on 66,000 common shares, compared with $20,182 or 69 cents a share on 29,410 preferred shares in the 9 months ended January 31, 1938. Quarter to January 31: Net income, $38,672, equal to 37 cents each on 66,000 common shares, against $40,001 or 30 cents a common share in preceding quarter and net loss of $4,113 in January quarter of preceding year.

Brunswick Nets $58,660

The Brunswick Pulp and Paper Company reports as follows for the six months to December 31: Net earnings amounted to $58,660, compared with $47,700 earned in the period covering February 27, 1938, to June 30, 1938.

Kalamazoo Valley TAPPI Meets

The Kalamazoo Valley Section of TAPPI met Thursday, March 2, at the Park American Hotel in Kalamazoo.

After the dinner, a business session was held at which the recently compiled Articles of Organization and By-Laws were ratified. Roll call was taken—17 members of National TAPPI were present.

It was moved, supported, and carried that since all members had received copies of the By-Laws the previous week, it would be unnecessary to have them read aloud at the meeting.

It was moved, supported, and carried that the Articles of Organization and the By-Laws be accepted as drawn up. The articles of organization follow:—

Article I Name

The Section shall be known as the Kalamazoo Valley Section of the Technical Association of the Pulp and Paper Industry and hereinafter referred to as the Section.

Article II Object

The objects of this Section shall be to stimulate and sustain interest in the science of Pulp and Paper making by the promotion of educational activities in the form of lectures, dissertations, and discussions on topics of vital interest and value to the industry.

Article III Membership

There shall be two classes of membership, regular and associate. The former shall be those who are members of the parent association and pay dues therein. The latter shall be anyone interested in pulp or paper manufacture or in industries or institutions related thereto.

Article IV Dues and Funds

There shall be no dues for membership in the Section. The funds of the section shall be raised by a rebate on dues paid to the parent association, amount of which is to be set by the national executive board.

Article V Officers

There shall be a Chairman, Vice-chairman, Secretary, Treasurer and an executive committee of three. All of the above officers shall compose the executive council. All officers must be members of TAPPI.

Article VI Term of Office

The term of office for Chairman, Vice-Chairman, Secretary and Treasurer shall be for one year.

The Executive Committeemen shall serve for three years, one being elected each year.

Vacancies occuring during the year shall be filled by the Executive Council until the next regular election.

Article VII Elections

Nominations for offices shall be at the regular May meeting and the election shall be held at the regular meeting in June. Ten regular members shall constitute a quorum.

Article VIII Meetings

The Section shall hold meetings at least once each month, except July and August.

Article IX Approval By TAPPI

The Articles of Organization of the Section shall be approved by the Executive Committee of the Technical Association of the Pulp and Paper Industry.

Article I Duties of Officers

Sec. 1 It shall be the duty of the Chairman to preside at all meetings of the Section and of the executive council, and enforce due observance of the Articles of Organization and the By-laws. He shall appoint committees unless otherwise provided. He shall call meetings of the Council whenever he deems it in the interest of the Section to do so.

Sec. 2 It shall be the duty of the Vice-Chairman to perform the duties of the Chairman in his absence or inability to act. He shall prepare programs for the meetings of the Section and shall be assisted in this work by the Executive Council.

Sec. 3 It shall be the duty of the Secretary to keep a record of minutes of all meetings of the section and of the Executive Council. Prepare and mail notices of meetings to the members and to the various trade papers or their representatives.

Sec. 4 It shall be the duty of the Treasurer to keep an accurate record of all monies received and expended in a set of books belonging to the Section. Pay all bills and make an accounting report at the annual meeting of the Section. Immediately following the May meeting or as soon as he can close his books, he shall present a claim to the National Treasurer of the Technical Association wherein he shall claim rebate on the dues of all Regular members of the Section. With this claim he shall submit a copy of his annual financial report.

Sec. 5 The Executive Committee shall assist in the preparation of programs, make outside contacts to stimulate interest in the meetings and do all in their power to make the meetings more attractive and to build up attendance.

Sec. 6 Should any officer resign or for any reason be unable to complete his term of office, the Executive council shall elect a successor to serve the balance of the term.

Sec. 7 All decisions of the Executive Council, to be final, must be a majority vote of those present. Five members of the Council shall constitute a quorum for the transaction of business.

Article II Meetings

Sec. 1 This section shall hold regular meetings on the first Thursday of each month except July and August, at a place and time designated by the Executive Council.

Sec. 2 Executive council meetings shall be called by the Chairman at his discretion.

Sec. 3 At the regular meetings of the Section the following order of business shall prevail:

1. Call to order.
2. Roll Call.
3. Minutes of previous meetings.
4. Unfinished business.
5. Reports of Committees.
6. New Business.
7. Speakers.
8. Election of officers.
9. Installation of officers.
10. Adjournment.

ARTICLE III ELECTIONS

Sec. 1 A nominating committee of three shall be appointed at the April meeting and shall make their report at the May meeting.

Sec. 2 After the report of the nominating committee, the nominations shall be opened to allow for nominations from the floor.

Sec. 3 Election of officers shall take place at the June meeting and the new officers shall take office immediately following the election. Vote shall be by secret ballot on ballots provided by the Secretary for that purpose. The candidate receiving the highest number of votes shall be declared elected.

Sec. 4 The Chairman shall appoint a judge and two tellers to conduct the election. Should there be but one candidate for each office the Judge shall cast the unanimous vote of the assembly for the nominees.

ARTICLE IV MEMBERSHIP

Sec. 1 Any person who is a member of TAPPI and resides in the lower peninsula of Michigan or northern half of Indiana, may become a regular member of this section.

Sec. 2 Any person interested in paper making in any way may become an associate member of this Section.

ARTICLE V MISCELLANEOUS

Sec. 1 The fiscal year of the section for accounting purposes shall be from June 1 to May 31 inclusive and for officer administration, it shall be from election in June to election the following June.

Sec. 2 Committees shall be as prescribed by the Section from time to time, or as prescribed by the Executive Council.

Sec. 3 Unless otherwise ordered, committees shall be appointed by the Chairman who shall be an ex-officio member of all committees.

Sec. 4 Once each year during August the Executive Council shall revise the mailing list of the Section retaining only those names of TAPPI upon whom we receive dues rebates and non-members of TAPPI whom they deem sufficiently interested in the work of the section to be entitled to receive notices. At the time of this revision they may call in for conference any members of the section whom they feel can be of assistance.

ARTICLE VI AMENDMENTS

Sec. 1 Propositions to amend, add to, or repeal any article or section of these articles of Organization or By-laws must be made in writing and presented to the Executive Council who shall cause same to be printed or mimeographed and mailed to the membership and they shall be voted on at the next regular meeting.

Sec. 2 At any regular meeting of the Section, ten regular members shall constitute a quorum for the transaction of business.

Sec. 3 To adopt, repeal or amend any Article or Section of the Articles of Organization or By-laws shall require a two-thirds majority vote of the regular members present and must be approved by the Executive Committee of the Technical Association of the Pulp and Paper Industry.

Sec. 4 The foregoing Articles of Organization and By-laws shall go into effect the first day of April, 1939.

Executive Committee Appointed

It was moved, supported, and carried that the chairman appoint an executive committee of three to serve until the June election. Frank Libby, Wm. Hathaway, and Kent Kidder were appointed.

The program consisted of a review of the National Meeting by Wm. Kirkpatrick II and a talking motion picture from the Sutherland Paper Company.

Those in Attendance

Those present at the meeting were as follows:—

A. M. Cole, J. A. Heenan, H. C. Bradford, E. F. Whittington, D. D. Bachelder, C. W. Reade, Al Sherwood, Harlan Longnecker, Joe Widmeyer, F. R. Hamilton, W. A. Kirkpatrick, P. F. Neumann, F. K. Shankweiler, R. T. Mashburn, Paul Easton, R. A. Olson, A. B. Milham, W. K. Kidder, L. C. Daly, G. C. Schmid, Paul deGuehery, M. S. Fogerty, Hugh Smith, W. F. Hathaway, R. H. Hurst, John Bauman, R. B. Stewart, W. S. Taylor, J. R. Verdon, C. C. Schneider, H. Starr, P. H. Goldsmith, R. L. Barton, V. L. Shaw, S. H. Lindner, G. T. Ingling, J. A. Wise, I. W. Johnston, Lawrence Lynd, H. E. Stafford, S. V. Cottrell, N. J. Berger.

Paper Mill Council Meet at Gouverneur

[FROM OUR REGULAR CORRESPONDENT]

GOUVERNEUR, N. Y., March 11, 1939—Announcement is made here that a meeting of the Northern New York Council of Paper Mill Unions will be held in this place early next week. It was decided at the last council meeting at Carthage to hold the next meeting here in honor of the two local unions being formed by employees of the Rushmore Paper Mills at Natural Dam. The Carthage local was recently affiliated with the Carthage Chamber of Commerce. The council is made up of members of the International Brotherhood of Papermakers, International Brotherhood of Pulp, Sulphite and Paper Mill Workers, the Carpenters and Joiners' Union, a firemen's union and other unions whose members are employed in paper and pulp mills of Northern New York. A report on the recent National Labor Relations Board hearing in the case of the Rushmore Paper Mills will be given the delegates by Jacob Stephan, of Fulton, general representative of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers. About one hundred delegates are expected to attend the meeting. Among the locals to be represented at the meeting are two from Gouverneur, two from Ogdensburg, three from Norfolk, two from Harrisville, six from Carthage, two from Herrings, four from Deferiet, two from Dexter, two from Watertown and two from Oswego. Kyler Paul, of Harrisville, is president of the council; John Hayes, of Deferiet, corresponding secretary; Clarence Faulds, of Watertown, financial secretary, and William Tyo, of Norfolk, treasurer. There are several vice presidents.

To Manage North American Paper Co.

Frank D. Frampton has been appointed manager of the North American Pulp and Paper Corporation in charge of all operations as of March 1, 1939. Mr. Frampton was for the past sixteen years with the Hopper Paper Company of Taylorville, Ill. and for ten years, vice-president and general manager.

The North American Pulp and Paper Corporation, under the direction of Mr. Frampton, is manufacturing Bond, Book, Tissue and Offset papers.

Delaware Valley TAPPI Meets

The Delaware Valley Section of the Technical Association of the Pulp and Paper Industry met on March 10 at the Engineers' Club in Philadelphia. C. M. Connor opened the meeting by appointing Mr. Shoemaker chairman of the nominating committee, with Messrs. Underdown, Poor, Koenig, Loddengaard, Houlmes and Childers to serve under him.

The chairman then introduced William Law and John Caulkins of the International Printing Ink Corporation of Boston, Mass. The subject of the evening was the theory and application of color principles. The speakers gave a very interesting demonstration of the color principles set forth in three monographs on color published by the International Printing Ink Corporation some years ago. The three divisions are herewith enumerated.

Formation of Color

In this part of the presentation the speaker demonstrated to the audience precipitations of red, yellow and blue colors through various combinations of chemical solutions. This illustration was particularly striking in that the large beekers that were used for the demonstration were placed over a while light which was diffused through the solution.

Proof that all Color Exists in White Light

A prism was used to demonstrate the component parts into which white light is broken and followed this by explanation and charts showing the various wave lengths, both visible and invisible. Beginning with the short wave lengths he explained that wave lengths followed in order as:—cosmic, gamma, X-ray, ultra-violet, heat-waves, followed by the longer rays which are used in radio transmission. The next illustration was to demonstrate that the shorter waves of light through to yellow are filtered out of white light by the atmosphere. The demonstration was accomplished by throwing a beam of light through colorless liquid onto a screen. Then by causing a precipitate to form in this liquid, only the red light filtered through. The next illustration was on the transmission, reflection and absorption of light and the explanation of the spectrophotometer, together with charts indicating amount of light reflected from a given color in the various portions of the visible spectrum.

Classification of Color

As a third step the speaker explained the Munsell color system and its component parts of hue, value, and chroma. The next presentation was a practical illustration of the manner in which color should be used for printing or advertising work, and an illustration to the audience of the fallacy of the human eye in matching two identical colors when they are placed side by side on complementary color backgrounds.

A discussion followed after the talk on application of the principles of light to the use of inks in general.

The speakers had a very well thought out, well-planned lecture and demonstration which was enthusiastically received. The section wishes to congratulate not only Messrs. Law and Caulkins, but also the International Printing Ink Company for the work which they have done in the preparation of these lectures.

Those in Attendance

Those present included the following:

Robert A. Sloman, A. W. Cooper, P. J. Stuart, Jr., Alex. McInnes, Jr., Robert E. Smith, Walter P. Quinn, R. H. Underdown, William M. Lee, George H. Ditwiler, Wm. O. Neeb, Harry Hulmes, Earl Stafford, Edward J. Albert, L. F. Derr, Alan R. Boyd, J. J. Lofferty, E. J. Stokes, Charles W. Rivise, Howard H. Street, W. P. Richardson, A. W. Wickham, Henry C. Speel, J. C. Dieffenderfer, J. Carl Schmidt, A. W. Brandt, W. R. Willets, E. W. Diener, Marc Rolland, Henry Reeves, Jr., C. E. Kinney, Ward Harrison, Wm. M. Shoemaker, M. Connor, Dr. Kenneth Ulm, J. R. Atwater, Wm. S. Law, John M. Calkins, John H. King, H. R. Soam, E. H. Davis, Ray L. Trudgeon, G. L. Schwartz, P. M. Loddengaard, G. C. Walton, J. C. Shaw, Sam Reynolds, F. R. Thornton, R. M. Bates, R. Tutt, Jr., C. A. Shubert, M. Craig Maxwell, G. B. Martin. H. F. Hoffman, and J. F. Halladay.

Government Paper Bids and Awards

WASHINGTON, D. C., March 15, 1939 — Barton, Duer & Koch Paper Company has been awarded the contract for furnishing the Government Printing Office with 4,000 pounds (25,000 sheets) of 36 x 52, 75 per cent rag, lithograph finish map paper at 11.98 cents, bids for which were received on February 27.

R. P. Andrews Paper Company will furnish 6,250 pounds (50,000 sheets) of 50 per cent rag, 20 x 25 antique cover paper at 8.87 cents, bids for which were received on February 24.

Barton, Duer & Koch Company will also furnish 1,928 pounds of 75 per cent rag, 30 x 40 lithograph finish map paper at 11.98 cents; 11,640 pounds same 50 per cent rag, 36 x 54 at 9.7 cents; and 14,800 pounds same 26 x 38 at 9.7 cents. Bids for these items were received on February 17.

The same company will also furnish 7,800 pounds (100,000 sheets) of 75 per cent rag, 24 x 38, lithograph finish map paper at 12.05 cents and the Marquette Paper Company will furnish 74,800 pounds (800,000 sheets) of 32 x 42 white sulphite writing paper at 5.39 cents. Bids for these items were received on February 15.

Barton, Duer & Koch Company will also furnish 1,862 pounds of 50 per cent rag, lithograph finish map paper, 44 x 64 at 9.7 cents.

The Printing Office has received the following bids for 6,240 pounds (40,000 sheets) of 75 per cent rag, 38 x 48 litho finish map paper; Barton, Duer & Koch Paper Company, 11.98 cents; Stanford Paper Company, 12.58 cents; Butler Company, 16.88 cents; Mudge Paper Company, 12.57 cents; R. P. Andrews Paper Company, 14.93 cents; and Walker, Goulard Plehn Company, 12.7 cents.

For 9,386 pounds, (76,000 sheets) of 75 per cent rag, litho finish map paper, 34 x 34; Barton, Duer & Koch Paper Company, 11.98 cents; Stanford Paper Company, 13.87 cents; Butler Company, 16.88 cents; and R. P. Andrews Paper Company, 13.47 cents.

Arrange for Southern Paper Festival

The Southern Paper Festival will open on April 16 and will be followed by three days of diversified entertainment comprising balls, dances, pageants and a full program of other entertaining events. From an educational standpoint the Paper Products Exhibition which will be held at the City Auditorium will undoubtedly create a great deal of interest as some extremely fine presentations have been arranged. Among those exhibiting are displays presented by the Champion Paper and Fibre Company, University of Florida, Sears, Roebuck & Company, Paper and Printing Digest, National Container Corporation, South Carolina State Commission of Forestry, Union Bag and Paper Corporation, Forest Products Laboratory, Tennessee Department of Conservation, Dixie-Vortex Company, Southern Forest Experiment Station, Sutherland Paper Company, Woolworth Company, United States Department of Agriculture Southern Region, Veldown Company, Flintkote Company, Chatham Paper Company, A. P. W. Paper Company, Louisiana Department of Conservation, Savannah Sugar Refining Corporation, Southern States Pulp and Paper Club, Atlantic Mutual Fire Insurance Company, and a special display of printing is also being arranged by the Southern Master Printers Association. There will also be extremely interesting exhibits of early newspapers, Philately and photographic art. The exhibition will be open continuously for three days and will also include the continuous showing of educational films in respect to Forest Conservation and the production of pulp, paper and its equipment.

Exhibition of Equipment

At the De Soto Hotel an exhibition of equipment will be shown which will include displays by Jeffry Manufacturing Company, Beloit Iron Works, Philip Carey Manufacturing Company, General Electric Company, International Filters, Freyn Engineering Company, Arthur H. Thomas Company, Pusey-Jones Company, Condenser Service and Engineering Company, Permutit Company, Oliver-United Filters, IMPCO., J. D. Robinson Company, Activated Alum Corporation, Otto Goeppinger and others.

The annual meeting of the Southern Paper Trade Association will start on Monday, April 17 with a luncheon and business meeting for members in the De Soto Hotel continuing through the day and Tuesday, April 18 when their meeting will be thrown open to visiting merchants and distributors.

On Tuesday, April 18, the Southern States Pulp and Paper Club will hold their annual luncheon at the De Soto Hotel to which will be invited all visitors interested in the paper industry. The tableware for this luncheon is to be set entirely in paper products through the courtesy of the Sutherland Paper Company. The toastmaster for the luncheon will be Major D. G. Moon, Chairman of the Club, and an address will be made by Fred C. Clark, president of TAPPI, and the guest speaker for the occasion will be D. Clark Everest, president of the American Pulp and Paper Association.

In the afternoon the Southern States Pulp and Paper Club will hold an open technical session which will be presided over by R. G. MacDonald, secretary of TAPPI, and which will include among others the following papers: "Forests in the Economy of the South"—I. F. Eldredge, Regional Director of the U. S. Forest Survey of the South. A paper dealing with some phase of the forestry situation—Frank Heyward, General Manager of the Southern Pulpwood Conservation Association. "Conditioning Water for the Paper Mill"—Eskel Nordell, Technical Department of the Permutit Company.

Arrangements are also being made by the Paper Club for visits to the Industrial Plants in the immediate vicinity.

For those interested in sports a golf tournament will be held at the Savannah Golf Club for members and representatives of the Paper Industry. This tournament will begin Sunday morning, April 16, at 10:00 A. M. and run through Tuesday, April 18. The U. S. G. A. rules for medal play will govern the tournament and handsome prizes will be awarded. There will also be a tournament for ladies of the paper industry group.

A skeet tournament will also be held on Tuesday, April 18, all day starting in the morning with events for small bore and 20 gauge and in the afternoon there will be 100 bird registered skeet shoot by competing teams from the Southern States and other points. Golf tournaments for the general public will be held at the Municipal Golf Course. On the evening of Tuesday, April 18, there will be a Governors' Banquet and Formal Ball for which the guest speaker will be L. H. Hawkins, Executive Research Engineer of the General Electric Company.

The Story of Paper

A dramatic fantasy and theatrical spectacle will be presented on the stage of the auditorium for three nights of the Festival entitled "The Story of Paper". This under the direction of Miss Edith Russell of Harrington-Russell Festivals, Inc. will undoubtedly be one of the most magnificent presentations that has ever been given to bring out the story of the history of paper from its early inception in a colorful and historical manner.

The parades which are to be held both April 18 and 19 will contain many beautiful decorated floats and will be supplemented by military and naval forces including those from the visiting naval and coast guard vessels, the U. S. S. Savannah, and U. S. C. G. Cutters Bibb and Talapoosa. A float will be entered to represent each of the twelve Southern States and will carry the Princesses sent from that State to represent them and be presented at the Royal Court of the King and Queen of Papyrus.

With the many other entertaining features arranged for the festival such as trips to historical points, tea dances and fashion shows, coronation balls, masque and costume balls, naval and military reviews, kennel show, etc., the whole will make this Festival an extremely colorful event.

The two main hotels have been held to take reservations for representatives of the paper industry, and all those who desire to attend are urged to send in their reservations as soon as possible as they are being allocated rapidly.

Obituary

Frederick H. Benton

Frederick H. Benton, 80, former treasurer and general manager of the National Folding Box Company, New Haven, Conn., died November 4 in New Haven.

Mr. Benton was a native of Plainville and came to New Haven when a youth. He had been associated with the paper box industry for many years. Following his connection with the National Folding Box Company, he was associated with the Benton-Armstrong Company.

He was a charter member of the Union League Club, a member of the Farmer's Club and of the old New Haven Wheel Club. Mrs. Benton died in 1912.

Surviving are two sons, Roger A. and Louis P. Benton. Burial was in Evergreen Cemetery.

B. F. Newhouse

Benjamin Franklin Newhouse, 61, president and treasurer of the Newhouse Paper Company, Minneapolis, Minn., general paper merchants, died March 2 at his home following a visit to his wife who is ill at Abbott hospital.

Mr. Newhouse was born in Frankfort, Ky. and came to Minneapolis in 1914 as local manager of the Seamen Paper Company. He purchased this firm in 1933 and gave it its present name.

He was a member of the Minneapolis Athletic, Minneapolis, Minikahda and Automobile clubs.

Surviving is a son, Jerome F. Newhouse, who was on a tour of South America and Europe when Mr. Newhouse died.

William J. Rice

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 13, 1939—William J. Rice, sales manager of the Paper Box Division of the New Haven Pulp & Board Company, with offices in Cambridge, Mass., died suddenly March 1 in Havana, Cuba. His residence was at 95 Richmond road, Belmont, Mass.

Mr. Rice, about 44 years old, who died while on a southern cruise, was born in White Pigeon, Mich., and came to this vicinity approximately 12 years ago. He was with the Russell Box Company, Medford, Mass., for a number of years, and had been with the New Haven Pulp & Board Company about a year and a half. He was well and favorably known.

He leaves his widow, Mrs. Estelle Rice, who went by airplane to bring back his body, and two sons, William L. and Richard J. Rice.

The funeral services were held at the Waterman Chapel, Boston, March 6.

James B. Lyon, Jr.

James B. Lyon, Jr., 48, son of the founder of the J. B. Lyon Company, Albany, N. Y., died at his home in Albany on March 4, following a heart attack.

Mr. Lyon was a graduate of Albany Academy and Georgetown University. He was associated with his father in the printing and publishing business while it was conducted in the Lyon Block in Albany. Later he became vice-president and treasurer of the Fischel Paper Company.

During the World War he served in the army air service and was active in affairs of the American Legion, serving as treasurer of Fort Orange Post for ten years and was an honorary past commander.

Surviving are his widow and four children.

Charles F. Schaub

Charles Franklin Schaub, founder and president of the Pacific Straw Paper and Board Company, Longview, Wash., died March 2 at a local hospital following an illness of several weeks.

Mr. Schaub came to Longview in 1922 and was prominent in the early development of the industrial and civic life of the community. He founded the Pacific Straw Paper and Board Company with a capitalized valuation of $500,000 and built it up to a valuation of a million and a half with a steady payroll of 140 men.

He was well-known for his civic and church benevolences not only in Longview but in Seattle and throughout the diocese of Olympia. For a period of years he was president of the Manufacturers' Association of Washington, was a member of the Arctic Club of Seattle, and was a well-known Columbia river yachtman, being a member of the Longview Yacht Club.

Mr. Schaub was born at Covington, Virginia, and received his education at Vanderbilt university, Nashville, Tenn. He is survived by his foster daughter, Ruth Purdy Springer of Seattle, a brother William Schaub of Memphis, Tenn., and a sister Betty Elizabeth Lord of Chattanooga, Tenn.

Funeral services were held at Grace Episcopal church.

Hubert Niesen

APPLETON, Wis., March 13, 1939—Hubert Niesen, who was a resident of Kaukauna, Wis., for sixty years, died March 5 at the home of his daughter, Mrs. John Keelan, at Milwaukee, Wis. He was 88 years old. Mr. Niesen was affiliated for twenty years with the O'Keefe and Orbison Construction Company of Appleton, Wis., engineers and builders of paper mills. He was the builder of a part of the Thilmany Pulp and Paper Company mill, the Union Bag and Paper Company plant and the former Outagamie Paper Company mill at Kaukauna, Wis. He also invented a suction screen for paper machines. Funeral services were held at Kaukauna, and burial took place there.

Missisquoi Pulp Co. Elects Officers

The Missisquoi Pulp and Paper Company at its annual meeting at Sheldon Springs, Vt., elected the following officers:—H. E. Raymond, president; Charles D. Watson, vice-president and attorney; W. B. Sheehan, treasurer; John F. Gale, assistant treasurer.

The treasurer's report was received and explained. It was reported that there are 152,875 shares of four different classes of stock and dividends during the last eight years have been paid on 1,388 shares.

A. B. Calvin Goes with Johns-Manville

A. B. Calvin, formerly superintendent of the Columbia Box Board Mills, Mellenville Division, Mellenville, N. Y., is now with the Johns-Manville Company at Jarratt, Va.

WARNS OF GROWING NEWSPRINT COMPETITION

(Continued from page 15)

towards reform in the newsprint industry, "but they cannot effect a permanent cure with legislation. We, the people, must do it among ourselves. If we do this, our province will be one of the greatest hives of industry that the world has ever seen. We have the natural resources to make it such, but there is a fear and suspicion among Canadian and foreign investors which we must remove. This should be the objective of every political party, and the youth of our country, as it means the employment of every individual."

Future Secure with Proper Reform

Mr. Carrel closed his address with the reminder that he himself is "among the largest shareholders and investors in the newsprint industry of Quebec, and I am still confident in the future of this industry and those who control it," if there is the proper reform. He warned, too, that "we must not commit the injustice of blaming all industry generally and indiscriminately for the misdeeds and unethical practices of some of its members. There are in the newsprint industry, as in all other industries, men who are upright and honest, who realize the danger of tolerating corruption, and who are making valiant efforts to save the situation. They, too, recognize and condemn the unethical practices within their ranks, and can be depended upon to assist in a united effort to eliminate them."

Construction of Australian Newsprint Mill

Further particulars have been received here regarded the plan for establishing a newsprint manufacturing industry in Australia, recently reported to the Department of Trade and Commerce in Ottawa by the Canadian Trade Commission in Australia. The Australian Newsprint Proprietary, Limited, in which the leading newspaper publishers are financially interested, have started construction of a mill at Hobart, Tasmania, which is scheduled to come into production in May, 1940, with an initial output of 30,000 long tons per year. The company has an issued capital of £1,300,000, and authority to issue up to £4,000,000. It holds extensive timber limits, estimated to be capable of producing 100,000 tons of newsprint per year. The pulpwood is all of the eucalyptus species, and tests of this wood in British Columbia mills shows it to be capable of producing good newsprint. The company has obtained from the government a bounty on a sliding scale on newsprint produced. This bounty will apply for four years, after which it is expected the paper can be sold at a price to meet competition of imported paper. The present consumption of newsprint in Australia is around 165,000 short tons per year. Recently a group of Canadian newsprint companies entered into a seven year contract with Australian publishers to supply practically all their requirements.

Bowater Deal Approved

Apparently the agreement entered into between the Commissioner of Government in Newfoundland and the Bowater-Newfoundland Pulp and Paper Mills, has the approval of the British Government, for Sir Thomas Inskip, Dominion's Secretary, in reply to a question in the House of Commons, said the agreement "will prove to be in the best interest of the island." He pointed out that while it had been criticized in certain quarters in Newfoundland, it had received support in other quarters. According to the agreement, Bowaters, who recently acquired the International Power and Paper Company's huge Corner Brook mills, will purchase the extensive Gander limits from the Reid-Newfoundland Company, and increase the output of the Corner Brook sulphite plant by 300,000 tons annually.

Honor For Newsprint Executive

A. S. McNicholas of Montreal, has been elected as a director of the Bank of Canada for a three-year term. He is connected with a number of industrial corporations and is now president of Lake St. John Power & Paper Co., Ltd., and of Quebec Pulp & Paper Mills. Mr. McNichols takes the place on the board of directors of the Bank of Canada vacated by Joseph Beaubien.

Equipment of Mumford Mill Sold

Darwin E. Leland, general manager of the Mumford Paper Mills, Inc., at Mumford, announces that the machinery, ownership of trade names, and good will of that company had been transferred to a new company, to be known as Southern Tissue Mills, Inc., and will operate at Rockingham, N. C. Operation of the local mill will be continued until about May 1st, and some phases of production will be continued into June.

In spite of steady production, the Mumford mill, which manufactures high grade tissue papers, has been operated unprofitably for the past several years. Mr. Leland in commenting on the unfavorable economic conditions, states:

"No satisfactory solution to the problem seemed possible without undertaking an entirely new program, which I am happy to say, is now about to be realized with the entire approval of all the stockholders and, we hope, our customers.

"The Mumford Paper Mills, Inc. is to be liquidated. The equipment is being taken over by a new company that has been formed to establish a new mill which will continue with the same lines of paper, management, etc.

"Please note this is a voluntary liquidation, not a bankruptcy proceeding. All creditors will be paid in full. . . . The new mill is being engineered and new equipment installed to increase production and produce our papers more economically, as well as improve the quality. New grades also will be manufactured."

Empire State TAPPI to Meet

The Empire State Section of the Technical Association of the Pulp and Paper Industry will meet jointly with the New York-Canadian Division of the Superintendents Association at the New York State College of Forestry, Syracuse, N. Y. on Saturday, March 25 at 2 P.M. In the evening, at 7, there will be a dinner dance at the Onondaga Hotel.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Financing and Operation of Pulp and Paper Mills

General Construction News

Roanoke Rapids, N. C.—The Halifax Paper Company, Inc., manufacturer of kraft paper stocks, has approved plans for new addition to mill, to be one-story, reported to cost over $50,000, with equipment. General erection contract has been awarded to the Southeastern Construction Company, 218 West Second street, Charlotte, N. C., and work is scheduled to begin at once. J. E. Sirrine & Co., Greenville, S. C., are consulting engineers.

Dayton, Ohio—The Rike Paper Products Company, Campbell street, manufacturer of paper specialties, has acquired property adjoining plant at Hartford and Campbell streets, and will use for new addition. Project is now in a preliminary stage. Size and details of building will be determined in near future. It is proposed to carry out work in the spring or summer. No estimate of cost has been announced.

Wausau, Wis.—The Minnesota Mining and Manufacturing Company, St. Paul, Minn., manufacturer of sandpaper and other abrasive paper stocks, has plans for one-story top addition to mill at raw material plant at Wausau, estimated to cost close to $40,000, with equipment. Work is scheduled to be placed under way at early date. Toltz, King & Day, Inc., Pioneer Building, St. Paul, is architect and engineer.

Fernandina, Fla.—Rayonier, Inc., 343 Sansome street, San Francisco, Cal., manufacturer of rayon pulp, etc., is progressing with construction of new pulp processing mill at Fernandina, on which work was started a number of months ago, as previously announced in these columns, and will push erection to completion at earliest possible date. For this purpose the company has authorized an appropriation of $2,117,450, for final work on mill, including buildings and machinery installation. The plant will represent a total investment of approximately $6,000,000, and will have a rated capacity of about 180 tons per day. The Rust Engineering Company, Clark Building, Pittsburgh, Pa., has the general contract for erection.

Portland, Ore.—The Chase Bag Company, 155 East 44th street, New York, N. Y., manufacturer of paper bags and containers, etc., has practically completed the construction of new branch mill at Portland, and expects to place unit in service at early date for Pacific Coast trade. As previously noted in these columns, the plant is one-story, totaling about 60,000 square feet of floor space, and will be developed for large capacity. It will represent a reported investment of approximately $100,000, including equipment. Erection was carried out by the Austin Company, 16112 Euclid avenue, Cleveland, Ohio.

New York, N. Y.—The Crescent Drug Label and Box Works, 193 Mercer street, manufacturer of paper labels, paper boxes and kindred products, has leased space in building at 8 Washington place, and will occupy for plant. It is understood that present works will be removed to new location and increased facilities provided.

Chicago, Ill.—Bird & Son, Inc., East Walpole, Mass., manufacturer of roofing and building board products, wall board, corrugated and other paper stocks, has completed plans for new addition to branch plant at 1472 West Seventy-sixth street, Chicago, consisting of a one-story structure, 93 x 305 feet, designed primarily for storage and distributing service. It is reported to cost over $65,000, including equipment. Bids have been asked on general erection contract and it is proposed to place work in progress early in the spring. The Ben H. Marshall Company, 1515 Sherman street, Evanston, Ill., is architect; W. Gibbons Uffendell, 232 East Erie street, Chicago, is associate architect.

Chicago, Ill.—The Fort Dearborn Paper Company, 120 South Sangamon street, commercial paper products, has arranged for lease of large space on first floor and basement of building at West Adams and Aberdeen streets, formerly used by Kellogg Switchboard Company, and will occupy for expansion. Alterations and improvements will be made at once. Present establishment will be removed to new location in near future, where large increased facilities will be provided for storage, distribution and other departments. A special elevator will be installed for company service for bulk handling of paper goods.

Georgetown, S. C.—The Southern Kraft Corporation, 220 East 42nd street, New York, N. Y., has made application for Federal permission to dredge material in vicinity of its wharf on local waterfront, covering an area about 150 feet long and 40 feet wide, to facilitate the docking of cargo vessels for water shipments from local mill. Company is a subsidiary of the International Paper Company, first noted address.

New Companies

Brooklyn, N. Y.—The Atlas Tube and Reel Company, Inc., has been organized with capital of $20,000, to manufacture and deal in paper tubes and

kindred paper products. New company is represented by Robert Kopple, 60 Broad street, New York, N. Y., attorney.

New York, N. Y.—The Holdfast Paper Products Company, Inc., has been formed with nominal capital of $5000, to deal in paper goods of various kinds. New company is represented by Nathan Lashin, 11 West Forty-second street, New York, attorney.

Minimum Wage Hearing, March 27

The Public Contracts Board will hold a hearing in Room 3229, Department of Labor Building, Washington, D. C., at 10 A. M., Monday, March 27, 1939, to take testimony upon which findings of fact will be made to assist the Secretary of Labor in determining, pursuant to Section 1 (b) of the Public Contracts Act (49 Stat. 2036; 41 U.S.C. Sup. III 35), the prevailing minimum wages in the paper and pulp industry. The paper and pulp industry shall be understood to be that industry which is engaged in the manufacture of pulp and other fiber, and the primary conversion of pulp and fiber into paper and paperboard, and in addition the manufacture and conversion of primary paper into toilet paper and paper towels, and also coated book paper.

At the hearing an opportunity to be heard, either in person or by duly appointed representatives, will be given to persons engaged in the above-named industry, either as employers or as employees, to groups of such persons, and to others within the discretion of the Board. Briefs or telegraphic communications may be filed, but they should be received by the Administrator on or before the hearing date. Five copies of all briefs must be submitted. Employers appearing in person, or by representatives, or presenting briefs, should furnish the Board with the following essential data: (1) Name of firm, (2) Plant address, (3) Total number of employees in plant, (4) Number of male employees, (5) Number of female employees, (6) Classification of employees by occupations, including number engaged in each operation, (7) Hourly wages in each operation with designation of applicable time period, (8) If paid on piece work basis, weekly earnings in each class of employees, (9) Hours worked per week.

North Carolina Pulp Co. To Expand

RALEIGH, N. C., March 11, 1939—Department of Conservation and Development officials said Thursday a new unit will be added to the North Carolina Pulp Company plant in Plymouth at a cost of $800,000 to $1,000,000.

H. M. Kieckhefer, secretary of the Kieckhefer Container Company of Delair, N. J., informed the department his concern had purchased the Cherry River Paper Company of Richmond, W. Va. At present, he said, bleached pulp made in Plymouth will be sent to the new acquistion, but later the Cherry River plant is to be sold and its paper-making machinery moved to Plymouth. The move is expected to cost about $1,000,000.

Approximately $2,500,000 is already invested at Plymouth, Kieckhefer said, and 350 employes are on the plant's payroll. Transfer of the Cherry River machinery will mean construction of new homes for 50 families, he added.

To Erect Pulp Mill Near Campbell River

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., March 11, 1939—Restaking of boundary lines of the Deep River Development Company's holdings on Vancouver Island in the vicinity of Campbell River, B. C., is now in progress. The company proposes to erect a rayon pulp mill in this area at a cost of $12,000,000 and official negotiations are once more being opened up.

The property involved comprises 1,400 acres at Duncan Bay, recently purchased from a Campbell River syndicate for a townsite, pulp mill and rayon plant; 125 acres purchased from Bloedel, Stewart & Welch, with 11,000,000 feet of saw timber where the development company plans to establish a sawmill; thirty acres up and down Bulldog Canyon where the powerhouse and two dams will be located, and four holdings of 670 acres above the first dam towards Forbes Landing.

One dam, thirty feet high, will be placed at the mouth of Campbell River canyon if present plans materialize, and a 150-foot dam is planned for the canyon's foot.

It is understood that the company has made a deposit with the Provincial Government guaranteeing that it will go ahead with the $12,000,000 project within the next five years, starting May 3 or sooner. Gerald M. Christie is in charge of a small party of surveyors now carrying out the necessary surveys.

Representatives of the Deep River company in Vancouver said that the prospects for initiation of the project in the near future had improved considerably during the past few weeks, owing to the more settled condition of affairs in Europe and the known desire of British capitalists to place investments in Canada at this time.

It is hoped to dispose of some of the company's surplus power to subsidiary industries, and water may be supplied to Campbellton and Campbell River for domestic purposes.

Will Cease Using Word "Maker"

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 15, 1939—The Odman Corporation of Chicago, engaged in selling and distributing corrugated boxes or shipping containers, has entered into an agreement with the Federal Trade Commission to discontinue marking or stamping its products with its corporate or trade name together with the words "Certificate of Box Maker" or the word "Maker" or any other word or words of similar meaning so as to imply that it manufactures the products it sells or actually owns and operates or directly controls the plant or factory in which the boxes and containers are made, when such is not a fact.

Pacific TAPPI Discusses Personnel

The Pacific Section of the Technical Association of the Pulp and Paper Industry met in Seattle, Wash., on Tuesday, March 7. The speaker was Alec Herron, personnel director of the Crown-Zellerbach Corporation and Rayonier, Inc.

The annual meeting of the Section will be held on June 2-3, 1939, at Tacoma, Wash. This meeting will be held jointly with the American Pulp and Paper Mill Superintendents Association, Pacific Division.

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EDITOR

Ronald G. Macdonald
Editor Technical Section

Lynne M. Lamm
Washington Correspondent

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COMING EVENTS IN PAPER INDUSTRY

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Fall Meeting, Syracuse Hotel, Syracuse, N. Y., September 12-14.

NEW ENGLAND SECTION, Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—Second Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

AMERICAN PULP AND PAPER MILL SUPERINTENDENTS ASSOCIATION, Annual Convention, Wardman Park Hotel, Washington, D. C. June 13-15.

FIRST ANNUAL SOUTHERN PAPER FESTIVAL, Savannah, Ga. April 16-19.

NATIONAL SAFETY COUNCIL, PAPER AND PULP SECTION, Annual Meeting, Atlantic City, N. J. October 16-20.

EMPLOYER RIGHTS

In the labor decision handed down by the Supreme Court on February 27, the Court upsets the rulings of the National Labor Relations Board in three cases and clarified the rights of employers and employees. These decisions are considered so important by the Roosevelt Administration that Secretary Hopkins is expected to make some recommendation for changes in the National Labor Relations Act, popularly known as the Wagner Act. The Court clarified the general conclusion that the Labor Relations Act was one-sided, and that the Board enforcing the Act had failed to consider the rights of employers equally with the rights of employees.

The importance of these decisions in clearly defining the rights of management and labor may be briefly summarized as follows: (1) That an employer, even when disregarding the law, can discharge employees who commit illegal acts or engage in any form of violence. (2) That the courts are open to employers who object to findings of fact on which the decisions of the Board are based, with those findings subject to review in each case. (3) That it is the responsibility of workers to express a desire to bargain with the employer and not an employer responsibility to seek out workers with whom to bargain.

In the five-to-two decision concerning the sit-down strike in the Fansteel case, which has attracted wide attention, Chief Justice Hughes, speaking for a majority of the Court, denied the Board the right to compel reinstatement of sit-down strikers in the Fansteel Metallurgical Corporation's plant at North Chicago, denounced the strike, and condemned the board for exceeding its authority. Justice Stone, speaking for himself and concurring in part, holds that the law gave the Board power to require the company to reinstate some of its employees, but not others. Justice Reed, speaking for himself and Justice Black, holds that the law gave the Board power to require reinstatement by the company of all its employees. In these varying interpretations of the law between judges it is plainly revealed that the Wagner Act should be amended to clearly state in the law itself the interpretation of the Court.

In the Fansteel case the company had attempted to interfere with the self-organization of the workers and, according to the Court's summary of facts, had employed a spy to report on worker meetings. On the refusal of that company to bargain, a sit-down strike was called.

"The employees had the right to strike," Chief Justice Hughes said, "but they had no license to commit acts of violence or to seize their employer's plant. We may put on one side the contested questions as to the circumstances and extent of injury to the plant and its contents in the efforts of the men to resist eviction. The seizure and holding of the buildings was itself a wrong apart from any acts of sabotage, but in its legal aspects the outing of the owner from lawful possession is not essentially different from an assault upon the officers of an employing company, or the seizure and conversion of its goods, or the despoiling of its property or other unlawful acts in order to force compliance with demands.

"To justify such conduct because of the existence of a labor dispute or of an unfair labor practice would be to put a premium on resort to force instead of legal remedies and to subvert the principles of law and order which lie at the foundation of society. As respondent's unfair labor practices afforded no excuse for the seizure and holding of its buildings, respondent had its normal rights of redress. Those rights, in their most obvious scope, included the right to discharge the wrongdoers from its employ."

In pointing out that in an earlier decision unfair acts on the part of the employer were no excuse for the actions of the workers and that the employer was justified in discharging workers involved. He also pointed out that the Labor Relations Act does not interfere with the normal exercise of the right of the employer to select its employes or to discharge them. "We repeat," Chief Justice Hughes said, "that the fundamental policy of the act is to safeguard the rights of self-organization and representation, and, on the other hand, the Board is not entitled to make

its authority a pretext for interference with the right of discharge when that right is exercised for other reasons than such intimidation and coercion.

"We think that the true purpose of Congress is reasonably clear. Congress was intent upon the protection of the right of employees to self-organization and to the selection to representatives of their own choosing for collective bargaining without restraint or coercion. To assure that protection, the employer is not permitted to discharge his employees because of union activity or agitation for collective bargaining. Congress also recognized the right to strike,—that the employees could lawfully cease work at their own volition because of the failure of the employer to meet their demands. . . . We are unable to conclude that Congress intended to compel employers to retain persons in their employ regardless of their unlawful conduct—to invest those who go on strike with an immunity from discharge for acts of trespass or violence against the employer's property, which they would not have enjoyed had they remained at work."

Although clarification of the Labor Relations Act through interpretation by the courts may be adopted, it appears reasonable to expect Congress to clarify such legislative measures it passes rather than leave so much to judicial decision. At any rate, much of the present uncertainty and pending litigation would be considerably reduced if Congress would take a little more time to do a more careful piece of work in the first instance, rather than force the courts to decide what intent may lie in indefinite statements respecting the rights and responsibilities of both employers and employees.

French Newsprint Production Less

Newsprint production in France is estimated at 315,000 metric tons during 1938 as against 385,000 tons in 1937, a drop of 70,000 tons or 18 per cent. Imports during the same period dropped from 44,148 tons to 24,678 tons, thus reducing consumption of newsprint in France during 1938 by 89,470 tons compared with 1937.

The decrease in domestic production of newsprint is attributed chiefly to the general business decline in France during that year which caused a pronounced curtailment in the volume of newspaper sales. This may appear paradoxical when it is considered that during the several political crises of 1938 more editions of newspapers were published than usual, but for economic reasons, in order to stretch the available supply on hand, governmental restrictions as to the size of the issues were in force. The bigger and better news broadcasts of French radio broadcasting stations also are alleged to have reacted unfavorably on newspaper circulation and consequently newsprint consumption. Newspapers have fought against this radio news as being harmful to their business and have succeeded in having radio broadcasts restricted merely to the high-lights of the news.

Production Ratio Report

These statistics are based upon paper production reports to the American Paper and Pulp Association.

COMPARATIVE MONTHLY SUMMARIES[1]

Months	1939	1938	1937	1936	1935	1934
January	77.2%	63.9%	90.3%	76.1%	65.8%	.....
February	81.5%	68.7%	90.1%	77.9%	70.0%	.....
March	.....	69.6%	90.3%	76.0%	70.5%	.....
April	.....	68.3%	92.1%	82.3%	70.0%	.....
May	.....	69.0%	90.6%	81.6%	69.4%	.....
June	.....	66.0%	87.3%	80.7%	72.3%	.....
July	.....	72.0%	81.8%	77.3%	64.9%	.....
August	.....	77.2%	82.9%	81.5%	70.9%	.....
September	.....	76.3%	78.6%	80.5%	71.9%	58.2%
October	.....	82.5%	73.5%	87.6%	75.6%	64.7%
November	.....	79.6%	61.9%	88.0%	75.3%	61.7%
December	.....	74.4%	54.5%	85.9%	71.2%	59.6%
Year Average	.....	72.3%	80.6%	81.3%	70.5%	.....
First 9 weeks	79.5%	66.4%	90.1%	77.2%	67.7%	.....

COMPARATIVE WEEKLY SUMMARIES[1]

CURRENT WEEKS, 1939		CORRESPONDING WEEKS, 1938	
January 28	81.2%	January 29	68.1%
February 4	80.7%	February 5	67.1%
February 11	82.5%	February 12	68.0%
February 18	82.5%	February 19	68.4%
February 25	80.4%	February 26	71.3%
March 4	81.6%	March 5	67.8%

The following statistics show the number of mills reporting by ratio groups:

	Number of Mills Reporting—Current Weeks					
Ratio Limits	Jan. 28, 1939	Feb. 4, 1939	Feb. 11, 1939	Feb. 18, 1939	Feb. 25, 1939	Mar. 4, 1939
0% to 50%	69	58	51	45	54	44
51% to 100%	239	249	255	260	239	162
Total Mills Reporting	308	307	306	305	293	206

PAPERBOARD OPERATING RATIOS

Per cent's of operation based on "Inch-Hours" reported to the National Paperboard Association.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1935	62%	68%	68%	63%	61%	66%	62%
1936	62%	67%	67%	70%	69%	70%	69%
1937	80%	86%	86%	88%	85%	77%	66%
1938	54%	60%	61%	57%	58%	56%	57%
1939	60%	....	....	....	....	....	....

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1935	67%	71%	77%	71%	61%	66%
1936	75%	78%	82%	80%	74%	72%
1937	74%	69%	65%	55%	45%	73%
1938	66%	66%	70%	65%	59%	61%
1939	....	....	....	....	....	....

Week end. Jan. 28, 1939—68% Week end. Feb. 18, 1939—67%
Week end. Feb. 4, 1939—66% Week end. Feb. 25, 1939—68%
Week end. Feb. 11, 1939—69% Week end. Mar. 4, 1939—68%

[1] Production-capacity ratios are based upon six-day capacity ratings which are adjusted periodically to correspond with the ratings reported by individual companies. Ratios are subject to revision until all reports are received.

Whiting-Plover Begins Unique Campaign

The Whiting-Plover Paper Company of Stevens Point, Wis., has begun a unique and colorful advertising campaign on its permanized papers. Full pages in color, illustrated distinctively by drawings that emphasize the features of permanized paper are being run in the leading printing and paper publications.

The illustrative treatment is new in paper advertising. For example, the picture in the first ad shows a woman bent over an old-fashioned washtub while some long underwear hangs close by on the line. The headline says, "No Tattle-Tale Gray In Permanized Papers" (with apologies to Fels-Naptha).

Copy stresses the fact that permanized papers are made with water from Whiting Springs, "the purest paper making water known".

Supplementing the publication advertising is an extensive direct mail campaign which includes various booklets, broadsides, letters and a monthly publication, "Permanized Selling".

A part of the section devoted to pure research at the Stamford Research Laboratories of the American Cyanamid Company.

TO MEET YOUR NEEDS FOR PAPER CHEMICALS

Cyanamid is fully prepared to meet your needs with good products and good service on these paper chemicals . . .

SIZES • ALUM	AEROSOL* WETTING AGENTS	TAPIOCA FLOUR
COATING MATERIALS	DEFOAMERS	SAGO FLOUR
FILLERS	SULPHONATED OILS	AND OTHER PAPER CHEMICALS

*Trade-mark of American Cyanamid & Chemical Corporation applied to wetting agents of its own manufacture.

American Cyanamid & Chemical Corporation

30 ROCKEFELLER PLAZA, NEW YORK, N. Y.

Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Review Of Paper Industry Literature

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C. for 10 cents each. Send currency, not stamps.

Beating

Some Physical Aspects of Beating. James Strachan. World's Paper Trade Rev. 109, Techn. Conv. No. :54-66 (March, 1938); Paper-Maker. 95: TS49-52, 54 (April, 1938).—A general discussion in the light of modern conceptions of the structure of the cellulose fiber. From a comparison of the beating properties of easy-bleaching soda and sulphite pulps prepared from the same wood, it is concluded that, quite apart from chemical reactions during digestion, distortion of fiber form due to osmotic pressure may play an important part in the physical properties of the resultant cellulose. The wetness of the stuff produced during preliminary operations and during the earliest stage of beating involves two factors: (1) softening of the fiber, produced by prolonged soaking in water and by pressure of the roll in the earliest stages of beating, and (2) fibrillation, which commences even in the preparatory stages of breaking, washing and bleaching. It has been found that, after the usual water-soluble impurities have been extracted from bleached cellulose, water at ordinary temperatures has a definite solvent action on cellulose. During the operations of extraction and evaporation of the extract, there is some breakdown in the cellulose molecule, as a result of which there is no crystalline cellulose in the residue extracted by solution and evaporation from the cellulose. With careful evaporation of the extract, the soluble residue may be recovered perfectly white in color; it is colloidal in nature and is soluble in water; evaporation of this solution in concentrated form yields a transparent, brittle, gum-like substance. When cellulose fibers are moistened with water and dried, they must remain coated on their entire surface with an exceedingly thin film which is not cellulose, the presence of which explains satisfactorily why it is impossible in practice to obtain a tensile strength in the long direction of paper consistent with the ultimate strength of the fibers used in making the sheet, why paper loses its strength when immersed in water, and why the fibers are so easily separated in the moist condition. The electrokinetics of cellulose are briefly discussed more particularly in the light of its recently-discovered solubility in water.—A.P.-C.

Beater Room Control. W. F. Hoffman. Paper Mill 60, No. 44:15-17 (Oct. 30, 1937).—A description of tests and measurements which are useful and worth while as a part of beater room control.—A.P.-C.

Beater Room Control. W. F. Hoffman. Paper Mill 61, No. 11:17-22 (March 12, 1938).—A description, from a practical operating standpoint, of a basis for technical beater room control, giving a more or less complete description of tests and measurements made on the pulp and other materials used in the beater room, a complete record of the beater furnishes including all changes made during a single order on the machine, a record of such determinations as the acidity, temperature, and freeness of the pulp as it goes onto the machine, and various tests on the tray water.—A.P.-C.

The Importance of Roll Pressure in Beating as Compared to Roll Position. C. D. DeMers. Paper Mill 60, No. 45:17-22 (Nov. 6, 1937).—A discussion of the development of and possibilities offered by the beater roll pressure recorder constructed by Taylor Instrument Companies, Inc., Rochester, N. Y.—A.P.-C.

Utilization of Waste from Breaker Beater. E. C. Gildenzopf. Paper Mill 60, No. 42:18-19 (Oct. 16, 1937).—Rags and strings from a breaker beater are conveyed directly to a disintegrator with special tackle which rapidly separates and fines them into useful individual fibers which are returned to the breaker beater.—A.P.-C.

Bleaching

An Analysis of the Chemical Reactions Involved in the Bleaching of Pulp with Chlorine. W. R. Carmody and J. S. Mears. Pacific Pulp Paper Industry 12, No. 4: 25-31 (April, 1938); PAPER TRADE J. 106, No. 20:38-40 (May 19, 1938).—Two separate and distinguishable reactions were noted in the bleaching of pulp with chlorine: (1) a very fast reaction, the rate of which is proportional to the first power of the "active lignin" concentration, and (2) a much slower reaction of the second order involving "inactive lignin." In alkaline solution both reactions are entirely oxidative; in acid solution they appear to be mixtures of oxidation and chlorination. Sixteen units or molecules of chlorine unite with one unit or empirical molecular weight of lignin.—A.P.-C.

The Use of Caustic Soda in the Bleaching of Wood Pulp. George E. Schmidt, Brian L. Shera and T. W. Toovey. Paper Trade J. 106, No. 19: 44-47 (May 12, 1938).—Experiments are described

which show that the use of caustic soda improves the physical and chemical properties of the pulp. The consumption of caustic soda reduces the consumption of chlorine and improves the final product.—A.P.-C.

The Bleaching of Pulps. J. Elm's. Rev. Gin. Mat. Plastiques 14:37-41 (1938).—A discussion of recently published work on hypochlorite bleaching.—A.P.-C.

Pennsalt Bleaching Method. E. Opfermann. Z. Papier, Pappe, Zellulose, Holzstoff 56, no. 8:101-102 (April 30, 1938); B. I. P. C. 8:369.—Brief reference is made to the advantages of the bleaching method of the Pennsylvania Salt Manufacturing Co., which is carried out in hollanders with dispersed gaseous elemental chlorine (U. S. patent 1,971,241 [Aug. 21, 1934]).—C.J.W.

Sizing

Influence of Animal Glue Surfacing Materials on Certain Properties of Paper. J. J. L. Luti. Chem. Weekblad 35.211-218 (1938); C. A. 32:4333.—Papers finished with rosin or with rosin and animal glue were comparatively examined for the influence of relative atmospheric humidity on breaking strength, stretch, creasing number and resistance to stamping. No consistent relation could be found that would warrant recalculation of values observed at a given relative humidity to some standard humidity (e. g., 65%). The creasing number determined by the Schopper apparatus is predominantly influenced by the breaking strength and the suppleness of the paper; no factor could be found that would correlate the creasing number obtained at a given humidity with that obtained at any standard humidity. The resistance to stamping appears to be little influenced by humidity. Animal glues appear to have little or no influence on the moisture content of the papers but the presence of glue distinctly slows the rate of moisture absorption. Determination of the glue content of papers by extraction with hot water does not yield reliable results.—C.J.W.

The Sizing Problem. Anon. Mon. Papeterie Belge 18:107, 109 (Feb., 1938).—A brief discussion of the relative merits and drawbacks of the various types of size at present on the market.—A.P.-C.

Dissolved Alum vs. Dry Alum. Anon. Paper Industry 20.39 (April 1938).—A brief discussion of the relative merits of adding alum to the beater in solution or in dry form.—A.P.-C.

Sodium Aluminate: Its Use and Effect. J. J. Healy, Jr. Paper Mill 61, No. 15:13-15 (April 9, 1938).—A discussion of the merits of sodium aluminate for sizing paper.—A.P.-C.

Starch-Treating Enzymes for Paper Sizing. Joseph H. Thomas. Paper Mill 61, No. 17:15-20 (April 23, 1938).—An explanation of the modification of starches by treatment with enzymes and of the application of the resulting products to paper sizing.—A.P.-C.

Process for Sizing Paper. I. G. Farbenindustrie Aktiengesellschaft. Fr. pat. 824,952.—Engine sizing with rosin or wax is improved by adding to the furnish water-soluble polymerized acid amides, such as the polymerization products of the amides of acrylic acid or its homologues.—A.P.-C.

Fillers

Investigation Concerning the Increase in Filler Retention in the Loading of Paper. W. Brecht and R. Rausch. Papier-Fabr. 35, No. 48:449-55 (Nov. 26, 1937).—Compared to the relatively small increase in retention due to purely mechanical influences, the physical-chemical influences play a large part in the adsorption and occlusion processes giving greater filler retention. Chemical means offers the best method for filler retention and mechanical treatment of the stock has comparatively little effect. The results of the investigation show that neither the filler nor stock concentration or the sequence of addition to the beater have any significant influence in the retention. The addition of a flocculation medium such as the Sveen process animal size produces great increases in the filler retention. The quantity added is small and there were no disadvantages, in fact there took place certain beneficial side-reactions. Complete details of the methods used in the investigation are given, stock preparation, sequence of addition to the beater, treatment of stock in the beater, stock dilution before formation and the "Sveen process" treated in full.—J.F.O.

The Loading Content of Papers. F. V. Mon. Papeteries Belge 18:101-105 (Feb., 1938).—The method devised by Franz Schütz for determining the filler content of different portions (outside surfaces, inside) of a sheet of paper is described. In groundwood-free papers made from well beaten and sized stock, there is a decrease in the filler content of the sheet only at the upper side, and throughout the remainder of the thickness it remains practically constant. In papers that are only slightly sized, are manufactured at high speed and contain considerable groundwood, there is a considerable loss of filler in the lower portion of the sheet.—A.P.-C.

The Physical Chemistry of Clay as Related to Paper Filling. C. G. Albert, Trans. Electrochem. Soc. 73, 10 pp. (preprint) (1938).—The physical chemistry of clay, its particle size and structure and colloidal reactions, are reviewed briefly and in a general way with reference to the behavior of clay when used as a paper filler. The connection of the colloidal complex and osmotically imbibed water with deflocculation, flocculation and co-flocculation with other paper making materials, is pointed out. Paper makers have observed that, in general, this retention of clay by the sheet increases: (1) as the weight of the sheet increases; (2) as the machine speed decreases; (3) as sizing is improved; (4) as the slowness of the stock increases; (5) as the length of fiber increases; and (6) as the specific gravity of the filler decreases.—A.P.-C.

Paper Fillers: Slate Dust. A. Esme. Papeterie 60:350, 353 (April 25, 1938).—A brief discussion of its suitability as a paper filler.—A.P.-C.

Coating

Paraffin and Its Use in the Paper Industry. M. de Buccard. Papeterie 60:298-305 (April 10, 1938).—A review of the properties of paraffin and of its use and merits for the coating and impregnation of paper.—A.P.-C.

Printing and Coating Papers for Use as Wrappers, Particularly for Food Products. R. A. Hayward. Brit. pat. 471,338 (June 8, 1936).—A smooth-surfaced paper is given a background coating consisting of a water-color paste having an adhesive vehicle (moisture content must be insufficient to cause expansion and wrinkling of the paper), then dried, the coated surface decoratively printed with an oil-base ink, and preferably a film of wax applied to the printed side. A suitable background-coating composition is prepared by heating together starch and

water and adding lithopone, glycerin, a pigment and a preservative. The coated papers are odorless and have effective sealing properties.—A.P.-C.

Coated Paper, Etc. Geo. C. Tyce, Imperial Chemical Industries Ltd., and Victor Lefebure. Brit. pat. 473,657 (Oct. 15, 1937); Fr. pat. 820,639 (Nov. 16, 1937).—In a continuous process for coating absorbent material such as paper, cardboard, etc., in long lengths with aqueous dispersions of solid water-insoluble synthetic resins, the coated material is rapidly dried at above 110°C. so that the resin is deposited as a continuous film and then hot-calendered to produce a glossy surface. Suitable resins are polyvinyl chloride or acetate, polyacrylic acid esters, polystyrene and polyhydric alcohol-polybasic acid resins. Wax may be incorporated in the dispersion to produce a film on the coated surface that may be subsequently removed.—A.P.-C.

Paper. The International Printing Ink Corp. Fr. pat. 820,465 (No. 12, 1937).—Paper with a highly reflecting surface is made by coating the surface with a solution of a cellulose derivative in a mixture formed of a volatile liquid having a high solvent power for the derivative and a less volatile liquid having a lower solvent power for the derivative. The liquid is removed by volatilization. A plastifier such as glycerol may be added. Examples contain: (1) nitrocellulose, acetone, methanol, water and glycerol; (2) nitrocellulose, triacetin, butyl sterate, methylacetone and toluene, and (3) cellulose acetate, acetone, xylene and castor oil.—A.P.-C.

Synthetic Waxes in the Paper, Carton and Board Industry. Fritz Ohl. Wochbl. Papierfabr. 69, No. 10:193-96 (March 5, 1938).—The advantages of synthetic waxes over natural waxes are given, amongst the more important are uniformity and the ability to saponify synthetic waxes in stoichemetrical proportions. The synthetic waxes are grouped according to their chemical nature, such as, the ester, the acid and the alcohol waxes, glycerin ester, glycol ester, high molecular hydrocarbons and chlornaphthaline. Examples of synthetic waxes in the various groups are given, and the synthetic waxes which are used as a substitute for the various natural waxes are also discussed. Formulas and applications for the various synthetic waxes are given, in particular those using paraffine.—J.F.O.

Dyes and Dyeing

Pigmentary Dyestuffs for Paper. J. Keaton. Paper-Maker. 95:TS57-64 (April, 1938).—A general discussion, with results of some experimental work with specific groups of pigment dystuffs. The affinity of some of the pigments available today for various classes of pulps is examined in some detail and the method of obtaining the best result indicated. The organic pigments of most interest to the paper maker are tabulated, and also their general properties. The manufacture of laminated sheets is briefly described. The introduction of a small range of dyestuffs suitable for dyeing without alum or size is indicated. An attempt to measure the retention of pigment dyestuffs by fiber was only partially successful.—A.P.-C.

Fastness To Light of Colored Papers. H. Ainsworth Harrison. Paper Trade J. 106, No. 19:35-43 (May 12, 1938).—Text of the report of the Paper-makers' Association of Great Britain's committee on a standard method of determining the fastness to light of colored papers. It is essentially a progress report describing the work carried out over a period of 3 yrs., from which no definite conclusions are drawn or recommendations made, but which gives promise of finding a satisfactory solution. The most promising method investigated is quite novel and is based on: (1) measuring the amount of daylight or artificial light to which the samples are exposed, and (2) obtaining a series of graduated contrasts for comparison with the simultaneously faded samples.—A.P.-C.

Dyestuffs and Their Proper Applications. William C. Marshall. Pacific Pulp Paper Industry 11, No. 12:23, 25 (Dec., 1937).—A brief discussion.—A.P.-C.

Many Causes for Two-Sided Paper. Fred A. Soderberge. Pulp Paper Mag. Can. 39:337-339 (April, 1938).—A brief discussion of the mechanical and chemical causes producing two-sidedness in paper. An example is given to show how two-sidedness may in many cases be avoided by proper co-operation between the sales, operating and control departments of the mill with the dyestuffs manufacturer.—A.P.-C.

Two-sidedness in Colored Papers. B. Cornely. Zellstoff U. Papier 18, No. 4:192-94 (April, 1938).—The different types of two-sidedness and their causes are discussed. In papers containing ground wood, the wire side of the sheet contains the most ground wood and in papers containing filler the top side contains a higher percentage of filler. Structural two-sidedness is caused on the wire, colored two-sidedness depends of the filler and the type of dyestuff and cylinder two-sidedness depends on the choice of dyestuffs and the method of drying.—J.F.O.

Investigation Over the Coloring of Regenerated Cellulose Foil With Substantive Dyestuffs. D. Kruger. Zellstoff u. Papier 18, No.5:241-44 (May, 1938). Results obtained from the use of certain dyestuffs on regenerated cellulose foil made from viscose, copper solution and acetate. To distinguish between viscose and copper solution foil, a mixture of substantive and basic dyes are used. The substantive dye acts quicker on the copper solution regenerated cellulose and the basic acts stronger on the viscose regenerated cellulose.—J.F.O.

Drying

Two-Sidedness and the Suction Couch. Leon E. Smith. Paper Mill 61, No. 6:15, 18 (Feb. 5, 1938).—A brief discussion of the action of the suction couch roll on colored sheets.—A.P.-C.

Some Factors Affecting the Life of Fourdrinier Wires. Walter S. Hodges. Pacific Pulp Paper Industry 11, No. 12:17-21 (Dec., 1937); Paper Mill 60, No. 52:13, 20 (Dec. 25, 1937); Pulp Paper Mag. Can. 39:406-407 (May, 1938).—A brief discussion.—A.P.-C.

Machine Clothing. W. C. Warrell. World's Paper Trade Rev. 109:TS12-16, 2126 (Jan. 14, Feb. 11, 1938); Paper-Maker 95:TS20-24 (Feb., 1938)—A general discussion.—A.P.-C.

Felts and the Machine. Arthur M. Mears. Paper Mill 60, No. 52:17-18 (Dec. 25, 1937); Pacific Pulp Paper Industry 11, No. 12:15-16 (Dec., 1937).—A brief discussion of some of the principal factors which affect felt life.—A.P.-C.

What the Machine Builder Has Done To Improve the Life of Machine Clothing. R. T. Petrie. Paper Mill 60, No. 52:15-16 (Dec. 25, 1937); Pacific Pulp Paper Industry 11, No. 12:26-30 (Dec., 1937).—A brief discussion.—A.P.-C.

A Fundamental Study of the Removal of the Constituents of Wood in the Alkaline Cooking Process*

By F. E. Brauns [1] and W. S. Grimes [2]

Abstract

A series of some 20 cooks of spruce wood has been made with varying amounts of sodium hydroxide and the pulps and waste liquors anaylzed for their lignin contents; the material recovered from the black liquor by precipitation with acid was also studied. The data show, in agreement with earlier work, that the carbohydrate materials dissolve more readily than the lignin in the early stages of the cook; then follows a simultaneous dissolution of carbohydrate material and lignin; while in the later stages of the cook, when nearly all of the pentosans and hemicelluloses have been dissolved, more lignin goes into solution. A two-stage cook was also studied; the results showed clearly no resinification of the lignin and that a normal pulp can be obtained by such a process. Preliminary hydrolysis of the wood with 1 per cent sulphuric acid considerably decreased the pulp yield. For a normal one-stage soda cook, the alkali consumption is about 16 per cent; of this, approximately 1.5 per cent is consumed by the formyl and acetyl groups present in the wood; 3 to 4 per cent are required for the solution of the lignin; a portion of the remaining alkali is retained by the pulp through absorption, while the major portion is used for the dissolution of the carbohydrates, a part of which is undoubtedly transformed into acidic products. In a two-stage cook, the alkali consumption (18.6 per cent) is somewhat higher, due in part to absorption by the pulp.

Introduction

The soda pulping process is the oldest chemical process for the production of pulp from wood but, in spite of this, very little is known about the actual chemical reactions taking place between the caustic soda and the various components of the wood. In the process, wood in the form of chips, is heated under pressure with a caustic soda solution in such a way that for every 100 kilograms of chips, 25-30 kilograms of caustic soda are used in a 4-5 per cent aqueous solution. After cooking for 4-6 hours at 160-180 deg. C., most of the lignin is dissolved and may be washed out of the pulp. Acidification of the alkaline waste liquor, the so-called black liquor, gives a brown precipitate, which is called alkali lignin. Numerous investigations, e.g., by Hagglund *(1)*, Curran *(2)*, Nolan *(3)*, Maass *(4)*, and others, have been carried out with special regard to the various factors, such as concentrations of the cooking liquor, the cooking time, the cooking temperature, the size of the chips, etc., without, however, going into the discussion of the actual chemical reactions. In an earlier investigation *(5)* it was found that two different lignin derivatives are precipitated by mineral acids from the black liquor of a soda cook of spruce wood. Alkali lignin A, insoluble in dioxane and ether, contains a ratio of methoxyl to acid hydroxyl groups of 6:3, while alkali lignin B, soluble in a dioxane-ether mixture, has a ratio of methoxyl to hydroxyl groups of 9:8. The ratio in which A and B are present in the crude alkali lignin is approximately 4:1. Lignin which has been isolated by means of methanol and hydrochloric acid, the so-called methanol spruce lignin, has a ratio of methoxyl to acid hydroxyl groups of 5:1 (after deduction of one methoxyl group introduced during the reaction). When these ratios are calculated to the basis of a uniform molecular weight of approximately 2000 for the alkali lignin unit, the following ratios of methoxyl groups to hydroxyl groups capable of methylation with diazomethane are obtained:

Lignin (from methanol lignin)	12 : 2.5.
Alkali lignin A	8 : 4.
Alkali lignin B	9 : 8.

Thus, alkali lignin B has approximately one acidic hydroxyl for each methoxyl group, alkali lignin A has one acidic hydroxyl group for each two methoxyl groups, while lignin itself has one acidic hydroxyl group for each five methoxyl groups. The 1:5 ratio has been found not only for a lignin derived from methanol lignin, but also for Freudenberg lignin and for a carefully prepared Willstätter lignin. This acidic (phenolic or enolic) hydroxyl group in the highly polymerized and highly molecular lignin complex, is not sufficient to bring about a complete dissolution of the lignin in dilute sodium hydroxide solution. However, it is a well-known fact that, on extraction of wood with cold dilute alkali, a small part of the lignin (Freudenburg's so-called "unformed lignin") *(6)* is dissolved. At a higher temperature, a deeper change takes place in the lignin molecule, with formation of new acidic hydroxyl groups, with the result that the greater portion of the lignin goes into solution.

The formation of new hydroxyl groups may occur either by hydrolysis of a phenolic, enolic, or acidic methoxyl group with simultaneous formation of methanol, by the opening of a furan or pyran ring, or by a combination of the two reactions:

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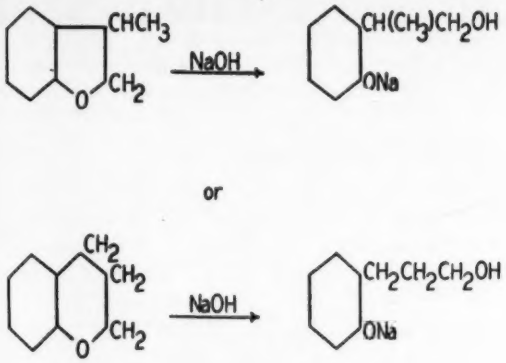
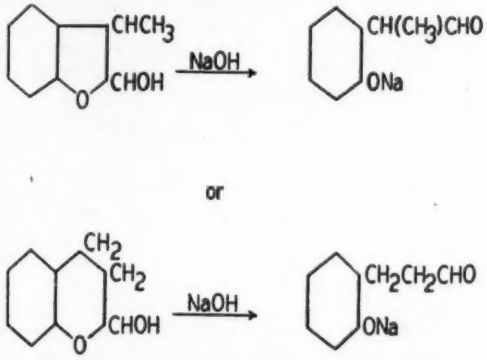


In the case where the furan or pyran ring contains a hydroxyl group in the ortho-position to the oxygen an aldehyde group is simultaneously formed in addition to the phenolic hydroxyl group:



It is doubtful, however, if this aldehyde group would be stable in the alkaline solution at the high temperature of the soda cook.

The first reaction, in which methanol is formed, may take place to a certain extent, since the methoxyl content of alkali lignin is approximately 2.5 to 3.0 per cent lower than that usually assumed for native lignin. This is also supported by the fact that, in the soda cooking process, small amounts of methanol are found in the waste liquor. The decrease in the methoxyl content from 16.5-17.5 per cent to 14-15 per cent corresponds to about one methoxyl group on the basis of a molecular weight of 850 for the methanol lignin unit, which would correspond to 1.13 kg. of methanol from 100 kg. of spruce wood. When the hydroxyl group formed by the splitting off of methanol is acidic in character, the ratio of methoxyl to acidic hydroxyl groups will change from 5:1 to 4:2, which is the same ratio as found for alkali lignin A. If this were the only reaction taking place in the formation of alkali lignin A, then this lignin should be simply a partially demethylated lignin. However, Willstätter lignin, prepared under more drastic conditions, has the same methoxyl content as alkali lignin A (often even somewhat lower) and is still insoluble in cold dilute alkali. Further demethylation of Willstätter lignin, e.g., with 5 per cent hydrochloric acid, as carried out by Heuser and co-workers *(7)*, yields a demethylated lignin which is insoluble in cold dilute caustic soda solution. This shows that a demethylation alone is not sufficient to render the lignin soluble. The investigation of alkali lignin A also indicates that a deeper change in the lignin molecule must have taken place.

In the case of alkali lignin B, with a ratio of methoxyl to acid hydroxyl groups of 9:8, the new hydroxyl groups cannot be derived from former methoxyl groups, as the methoxyl content is still 13 per cent instead of about 8 per cent, as would be the case if the new hydroxyl groups had been formed from hydrolyzed methoxyl groups. In alkali lignin B, therefore, some hydroxyl groups must come from the other reactions. A study of these reactions is in progress.

Taking the number of acidic hydroxyl groups in the two alkali lignins and the ratio in which both are present in the crude alkali lignin into consideration, the amount of alkali necessary for dissolution of lignin from 100 kg. of spruce wood on the basis of a lignin content of 30 per cent would be:

$$\frac{30 \times 4 \times 40 \times 80}{2000 \times 100} = 1.84 \text{ kg. for A;}$$

$$\frac{30 \times 8 \times 40 \times 20}{2000 \times 100} = 0.96 \text{ kg. for B;}$$

or a total of 2.8 kg. for the total lignin.

Assuming that, in the soda cooking process, the alkali would be consumed only in the dissolution of the lignin and in the formation of alkali lignins A and B, not more than 2.8 to 3.0 kg. per 100 kg. bone dry spruce wood, or about 3.0 per cent would be required. However, it is a fact of long experience that almost ten times this amount of alkali is necessary to bring about a dissolution of the lignin in order to obtain a pulp which can be bleached under normal conditions. This indicates that, in addition to the dissolution of the lignin, other reactions take place during the cooking; the purpose of this investigation is to collect more information about these side reactions.

Experimental Results

A number of cooks in series of three were carried out in a stainless steel laboratory digester in which three cylindrical steel cups of 700 cc. capacity could be placed. This arrangement permitted the carrying out of three cooks simultaneously, in which time, temperature conditions, and concentration of the cooking liquor were the same, but the ratio of caustic soda to wood was different. Spruce sawdust (50-65 mesh), previously extracted with benzene-alcohol, was used. After the cooks were finished, the pulps were filtered and washed. The first undiluted filtrate was kept separately. The pulps and the waste liquors were analyzed for their lignin content and the lignins for their methoxyl content. The experimental conditions and the analytical results are given in Table I.

The column headings in this table have the following significance:

A. Cook number.
B. Per cent sodium hydroxide used (based on the dry wood).
C. Per cent concentration of the sodium hydroxide used.
D. Temperature, °C.
E. Cooking time, hours.
F. Yield of pulp, per cent.
G. Lignin in pulp, per cent.
H. Lignin in pulp, calculated from F × G.
I. Lignin dissolved, 28.7 per cent — H.
J. Per cent lignin in the dissolved material.
K. Hydrochloric acid precipitate from waste liquor (per cent of original dry wood).
L. Methoxyl content of K.

M. Per cent of material in the cooking liquor recovered as K.
N. Per cent of lignin content of K, calculated from L on the basis of 15.5 per cent methoxyl for the original lignin, calculated for the precipitate.
O. Same, calculated for the liquor.
P. Alkali consumption, calculated from the electrometric titration curve.

In the first series of three cooks (1-3) the spruce wood was cooked with 3 per cent solutions of increasing amounts of caustic soda (based on dry wood) for one hour at 160 deg. C. The yields of pulp were high, but decreased slightly with increasing amounts of caustic soda used. The same is the case in the other series, but with more drastic conditions, such as increasing the concentration (cooks 7-9) or raising the temperature (cooks 4-6), the yields became lower and were still lower when both concentration and temperature were increased (cooks 10-12). The same result was obtained, as was to be expected, when the cooking time was increased. The change in the lignin content of the pulp showed a similar behavior. It is interesting to note that, under mild cooking conditions, the lignin content of the pulp increased (cooks 1 and 2) or remained practically the same (cooks 3 and 7) as the lignin content (28.7 per cent) of the original wood, in spite of the fact that almost 30 per cent of the wood had been dissolved. Even after 40 per cent of the wood had been dissolved (cooks 4, 8, 9, and 16), the lignin content of the pulp was still quite high (25.5-27 per cent). In column H the amount of lignin present in the recovered pulp is calculated; when this amount is subtracted from the original lignin content of 28.7 per cent, the amounts of lignin dissolved during the cook are obtained (column I). The percentages of the dissolved lignin in the dissolved wood are given in column J. For example in cook 1, 100 − 70.8 = 29.2 grams of the wood have been dissolved; 7.5 grams of this 29.2 grams, or 25.6 per cent (column J) of the dissolved wood is lignin, and the remainder, 29.2 − 7.5 = 21.7 grams or 74.4 per cent is dissolved carbohydrate material. A portion of the dissolved organic material in the waste liquor separates upon addition of hydrochloric acid as a slimy, flocculent precipitate. The amounts of this recovered from the various cooks are given in column K, the values being percentages of the original dry wood. It is evident that these precipitates do not consist of pure lignin but also contain carbohydrates which are present in the alkaline waste liquor and are precipitated on acidification. From the methoxyl content given in column L and using a methoxyl content of 15.5 per cent[3] for the lignin of

[3] This assumption may not be quite correct since a part of the MeO may be split off during the cook.

the spruce wood, the lignin content of the precipitate can be calculated either in per cent of the precipitate, as given in column N, or in per cent based on the original wood, as shown in column O, by means of the following equations:

$$\text{Per cent lignin in precipitate} = \frac{\text{MeO in ppt.}}{15.5}; \quad \text{Per Cent lingin in liquor} = \text{Per cent lignin in ppt.} \times \text{Per cent ppt. in liquor}$$

The comparison of the amounts of wood dissolved (100 − F) with the quantities recovered on acidification (column K) shows that a relatively small percentage of the dissolved products is recovered by precipitation; this varies from 20 to 47.5 per cent as shown in column M.

As a result of these experiments it is found, in agreement with earlier investigations *(1, 2)*, that the carbohydrate materials dissolve more rapidly than does lignin in the early stages of the cook; then follows a simultaneous dissolution of carbohydrate material and lignin, while in the later stages of the cook, when nearly all the pentosans and hemicelluloses have been removed, more lignin goes into solution. The larger proportion of the dissolved material is so far degraded that it is no longer precipitated from its alkaline solution on addition of acid. Under mild conditions the precipitated crude alkali lignin contains more carbohydrate material (cook 1) which, under more drastic conditions, is further degraded, giving an alkali lignin with a smaller contamination of carbohydrates (cook 18). Not only carbohydrate material, but also a part of the lignin, is decomposed in an alkaline cook. This part of the lignin which is only slightly resistant towards alkali amount to some 2 per cent and makes its appearance in the early stages of the cook (compare cook 1 with 17 and 18).

Two-stage Cooks

If it is true that the carbohydrate material is dissolved in the early stages of the cook then, in a two-

TABLE I
SODA COOKS OF SPRUCE WOOD

A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*K*	*L*	*M*	*N*	*O*	*P*
1	15	3	160	1	70.8	29.7	21.2	7.5	25.6	5.6	11.8	19.2	76.2	4.25	12.2
2	20	3	160	1	69.5	29.4	20.4	8.3	27.2	6.2	12.9	21.0	83.2	5.15	12.9
3	25	3	160	1	68.0	28.5	19.4	9.3	29.0	8.2	13.2	25.6	85.3	7.00	12.4
4	15	3	180	1	64.0	25.8	16.5	12.2	33.7	11.4	13.1	31.8	84.5	9.65	12.2
5	20	3	180	1	58.0	21.0	12.2	16.5	39.3	16.9	12.6	40.0	81.4	13.75	13.7
6	25	3	180	1	53.7	18.3	9.85	18.85	40.8	21.9	12.6	47.5	81.4	17.8	15.3
7	15	5	160	1	70.8	28.7	20.3	8.4	28.8	8.4	12.8	28.8	82.6	6.95	11.5
8	20	5	160	1	68.2	27.0	18.4	10.3	32.4	10.3	13.1	32.4	84.5	8.7	12.3
9	25	5	160	1	64.0	25.5	16.3	12.4	34.0	11.4	12.4	32.0	80.2	9.2	12.9
10	15	5	180	1	59.8	23.2	13.9	14.8	36.8	14.0	13.3	34.8	85.8	12.0	12.6
11	20	5	180	1	50.6	15.2	7.7	21.0	42.4	21.3	13.7	43.2	87.4	18.6	13.7
12	25	5	180	1	47.3	10.8	5.1	23.6	44.8	23.9	14.2	45.4	91.6	21.9	14.1
16	15	4	180	3	59.7	25.9	15.5	10.2	25.4	14.1	13.2	35.0	85.3	12.0	13.0
17	20	4	180	3	46.8	11.5	5.4	23.3	43.8	20.1	14.4	37.8	93.0	18.6	15.3
18	25	4	180	3	44.0	6.3	3.3	24.4	43.5	25.2	14.4	44.7	93.0	23.4	16.1

TABLE II
TWO-STAGE COOK

20a	25	3	180	1	54.4	17.3	9.4	19.3	42.3	19.8	13.6	43.5	87.8	17.4	13.9
20b	25	3	180	1	42.3	5.3	2.24	7.2	59.5	6.6	14.7	54.5	95.0	6.26	4.7

TABLE III
TWO-STAGE COOK OF HYDROLYZED WOOD

21a	25	3	180	1	57.0	28.2	16.0	18.4	42.8	21.7	13.9	50.5	92.0	20.0	14.7
21b	25	3.3	180	1	40.5	9.8	4.0	12.0	72.6	10.7	14.8	65.0	97.2	10.5	5.0

stage cook, this material should be removed chiefly in the first stage and more lignin should go into solution in the second stage. Spruce wood, therefore, was cooked with a two-stage cook. Such a cook was also of interest from another point of view. It has been maintained *(8)* that spruce wood cannot be pulped by a two-stage alkali cooking process on account of resinification of the lignin. This statement is the more surprising since recently several papers have been published on the multi-stage alkaline cooking process *(9)*. The results of a two-stage cook are given in Table II. In the first stage (20a) a semi-pulp is obtained in 54.4 per cent yield with a lignin content of 17.3 per cent. The yield of lignin from the waste liquor is 17.4 per cent or 43.5 per cent of the dissolved wood. The residual 56.5 per cent remaining in solution is composed of degradation products of carbohydrates and a small amount of lignin (1.9 per cent).

In the second stage (20b) the yield of pulp drops 12.1 per cent, 7.2 per cent of which (59.5 per cent based on the dissolved material) is lignin. This lignin can be precipitated from the waste liquor to the extent of 87 per cent. This lower yield of pulp may be due to the use of fresh cooking liquor in the second stage and to the low concentration of dispersed reaction products which would buffer the alkali solution.

The experiment also shows clearly that no resinification of the lignin takes place and that a normal pulp can be obtained in a two-stage cook.

Since it was found that approximately 30 per cent of the carbohydrate material of spruce wood goes into solution in the first stage of the two-stage cook, it was of interest to ascertain the behavior of the wood when a part of the easily hydrolysable carbohydrates was removed by a mild hydrolysis prior to the cook, particularly since it has been found *(10-12)* that mildly hydrolysed spruce wood is much more difficult to pulp by the sulphite process than is ordinary wood. Spruce sawdust was therefore hydrolysed according to Freudenberg *(13)* with 1 per cent sulphuric acid, giving a yield of 79.5 per cent of a product with 34.4 per cent lignin and a methoxyl content of the lignin of 15.1 per cent. This hydrolysed wood was subjected to a two-stage alkaline cook under the conditions given in Table III, which also contains the analytical results. These show that, in spite of the fact that 43 per cent of the wood went into solution, the lignin content has decreased only from 34.4 to 28 per cent. Of the dissolved wood, 50.5 per cent is recovered by acid precipitation of the waste liquor. Calculated on the basis of 15.1 per cent methoxyl in the lignin, 20.0 per cent of the original 34.4 per cent lignin is recovered. In the second stage, the yield of pulp decreased from 57.0 to 40.5 per cent, the lignin content of which decreased from the 28.2 to 9.8 per cent. Of the 16.5 per cent of wood dissolved in this second stage, 10.7 per cent, corresponding to 10.5 per cent lignin, is recovered on treatment with acid, indicating that almost pure lignin is precipitated from the waste liquor of the second-stage cook.

On the basis of the unhydrolysed wood, the yield of pulp even with a lignin content of nearly 10 per cent is only 32 per cent, while a two-stage cook of untreated spruce wood yields 42.3 per cent of a normal pulp with 5 per cent lignin. The lower yield from the hydrolysed wood indicates that the mild hydrolysis has partially attacked the cellulose and weakened its resistance towards alkali. The lignin does not seem to have been changed in its behavior towards hot alkali. This is in agreement with the fact that even Willstätter lignin can be dissolved in hot dilute alkali solution.

Alkali Consumption

The alkali consumption of the various cooks was determined by electrometric titration of the waste liquor and found to be in good agreement with the relation between yield and alkali consumption reported by Sutermeister *(14)*. The values for the alkali consumption, based on the dry wood, are given in column P of Table I. It can be seen that at 160 deg. (cooks 1-3 and 7-9) the alkali consumption is almost the same. With increasingly drastic conditions, the alkali consumption increases from 13 to 16 per cent. In the two-stage cook, the alkali consumption is still higher. This higher consumption in the latter case is due to absorption of the alkali by the pulp. This is shown by a comparison of cook 18 with 20a and 20b, where the amount of dissolved wood (56 per cent and 57.9 per cent) is almost the same, while in the two-stage cook (20) the total alkali consumption (18.6 per cent) is 2.5 per cent higher than in cook 18 (16.1 per cent).

For a normal one-stage soda cook, the alkali consumption is about 16 per cent. Of this 16 per cent, approximately 1.5 per cent is used by the acids present as formyl and acetyl groups, their amounts having recently been determined by Klingstedt *(15)* and found to amount to 2.0 per cent in black spruce. Of the remaining 14.5 per cent, from 3 to 4 per cent is required for the solution of the lignin. A part of the remaining 11.5 to 10.5 per cent is held by the pulp through absorption, while the major part is used for the dissolution of the carbohydrates. The changes undergone by these carbohydrates will be the subject of further investigation, but a part at least must be transferred into acidic products.

The opinion that a part of the lignin is in a chemical combination with a carbohydrate in an ether-like linkage is gaining more and more support among lignin chemists *(16-17)*. The fact that soda pulp always contains 5-6 per cent lignin may support this conception, as it is known that such a pulp is difficult to bleach in an alkali bleach, while the lignin is relatively easily removed by an acid bleach, such as a chlorination in the first bleaching stage by which the lignin carbohydrate linkage may be split.

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Drying Rates for Paperboard*

By A. E. Montgomery[1]

Abstract

The large number of returned questionnaires enables us to determine the drying rates for board more closely than in the past. The production and evaporation drying rates are plotted against steam pressure. The drying rates are assumed to vary as a straight line function of the steam temperature within the driers. A formula allows for correcting the drying rates from one steam pressure to another, or to a standard steam pressure. Caliper and weight appear to have no marked effect on the drying rates. No noteworthy difference is found between the drying rates for chip, test, or strawboard, with other conditions being equal. The final moisture content has a definite effect on the overall drying rates. The drying rates appear to be lower on long machines than on short ones. Other conditions are mentioned which influence drying rates. Allowing for correction of steam pressure, the drying rates for board average less than for news print or printing papers, higher than for glassine or absorbent, and about the same as for kraft.

Introduction

In 1932 Stamm *(6)* reported for the TAPPI Drying Committee the first survey on drying rates. This was for paperboard, but the data he had then were inadequate for forming complete conclusions. A new questionnaire survey conducted this past year yielded a gratifying number of returns, permitting a report now which is considered fairly conclusive.

In previous years the Heating, Ventilating and Drying Subcommittee of the Heat and Power Committee has collected data by means of questionnaires on the drying rates of paperboard *(6)*, kraft paper *(4)*, news print *(1)*, writing papers *(2)*, glassine and greaseproof papers *(7)*, and tissue and absorbent papers *(5)*. This was followed in 1936 with a summary for those grades *(3)*. During the past year data have been collected on book and other printing papers the results of which are being reported at this meeting.

Your Drying Committee has believed knowledge of what constitutes good, fair and poor practice of drying rates for the various classes of paper and board would be useful to mill engineers and operating men in checking any particular machine to see whether it is drying as it should under any given conditions. Attempts have been made to evaluate the weight which should be given to such factors as conditions of paper machine, type of paper, steam pressure, moisture content and the like, in their effect on the drying rates.

Form of Questionnaire

The form of the drying questionnaire used for securing the data on paperboard follows in general the forms used previously. The questions asked were as follows:

1. Number of driers
2. Diameter of driers
3. Face width of driers
4. Condition of drier surface (clean-fair-coated)
5. Do you use air nozzles in the pockets

Separate columns were then provided in which were to be filled in answers to the following questions for (a) the board considered easiest to dry, and (b) the board considered most difficult to dry.

6. Classification of board
7. Caliper
8. Basis, pounds per 1,000 sq. ft.
9. Speed of machine
10. Steam pressure on driers (if divided into more than one section give effective average)
11. Moisture in sheet entering driers, per cent (this figure is important)
12. Moisture in sheet leaving driers, per cent
13. Comments on any special condition not covered by above, which would influence drying rate on this machine

It will be noted that we do not ask the daily production nor the trim, but calculate the drying rate from the machine speed and basis weight.

Definition of Drying Rate

In all of the reports the drying rate has been defined as the pounds of paper dried (R_p) or pounds of water evaporated (R_w) per hour per square foot of total drier surface covered by the width of the sheet.

Method of Calculating Drying Rate

The total drying surface per inch of width:

$$S/W = 0.0218 \times N \times D \quad (1)$$

Where N and D represent, respectively, the number and diameter in inches of the driers. Should felt driers be used in connection with a drier felt this surface should be added.

The production drying rate expressed in pounds of paper dried per hour per square foot of drying surface:

$$R_p = \frac{\text{Speed} \times \text{Weight}}{S/W \times K} \quad (2)$$

Where: Speed = Speed of machine in feet per minute.
Weight = Standard ream weight of sheet.
K = A constant depending on the ream size, and which for board on a basis of 1,000 square feet is 200.

For calculating pounds of water evaporated per pound of paper dried we have found the following formula most convenient and easily remembered:

$$M = \text{B.D.}/\text{B.D.} - 1 \quad (3)$$

Where the B.D. above the line represents the per cent dryness of the sheet leaving the driers (the larger numeral), and the B.D. below the line represents the per cent dryness entering the driers.

The drying rate expressed in pounds of water evaporated per hour per square foot of drying surface then becomes:

$$R_w = R_p \times M \quad (4)$$

Effect of Steam Pressure on Drying Rate

Figs. 1 and 2 show the drying rates for paperboard. On Fig. 1 the production drying rate is shown in pounds of paper dried per hour per square foot plotted against both steam temperature and pressure. Fig. 2 shows the evaporation drying rate plotted in the same manner.

It is assumed here that the drying rates are a straight line function of the steam temperature. Un-

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Contribution of the TAPPI Heat and Power Committee.
Note:—This paper is based on a questionnaire survey made by the Subcommittee on Drying, Heating and Ventilating.

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doubtedly this is not exactly true, but it is sufficiently accurate for our purposes and the extent and variation of the data do not justify the attempt to determine a curve. The slope of the curves, which is to say the increase in drying rate with increase in steam pressure, is less than has been reported for the other classifications of paper in past reports. With the exception of kraft paper reported by Montgomery *(4)* the data secured were hardly adequate to justify a close determination of the slope of the drying rate curves, and it is quite possible that for kraft paper a greater amplification of the data would have shown a lesser slope. At any rate, the present report for paperboard has such a considerable amount of data and averages with such uniformity that it is believed the slopes of the curves are more accurate than those given heretofore.

Method of Correcting Drying Rate for Steam Pressure

The data at hand indicate that the drying rates may be represented by the formulæ on Figs. 1 and 2 which are as follows:

(5) $R_p = 0.00883T - C$, or
(6) $R_w = 0.0147T - C$

Where: R_p = lb. of paper dried per hour per square foot of drying surface
R_w = lb. of water evaporated per hour per square foot of drying surface
T = steam temperature in deg. F. of saturated steam at pressure in the driers, and
C = a constant for the particular machine and grade of paper.

The chief value of the formula is that it permits the correction of the drying rates for comparison at a constant steam pressure. Naturally, steam pressure is the greatest single variable influencing the drying rate. By eliminating this variable from all our data and correcting to a constant steam pressure we are able to study the effect of such other variables as weight or caliper of sheet, freeness of sheet, and others. It is assumed that as the drying rate of the average machine varies with steam pressure in accordance with the formula that any one machine would vary in the same way.

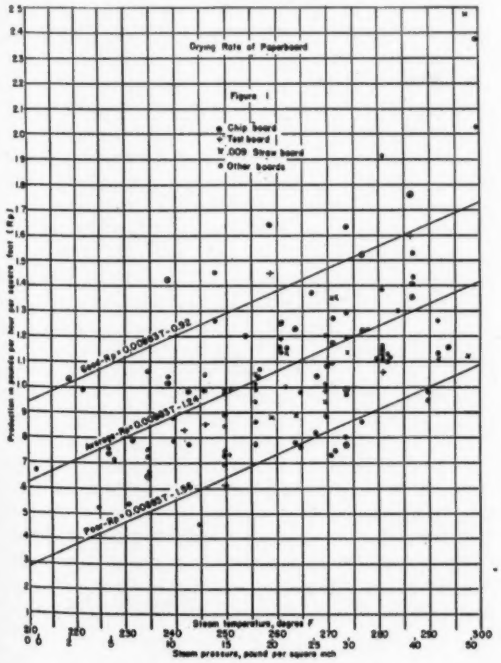

FIG. 1.

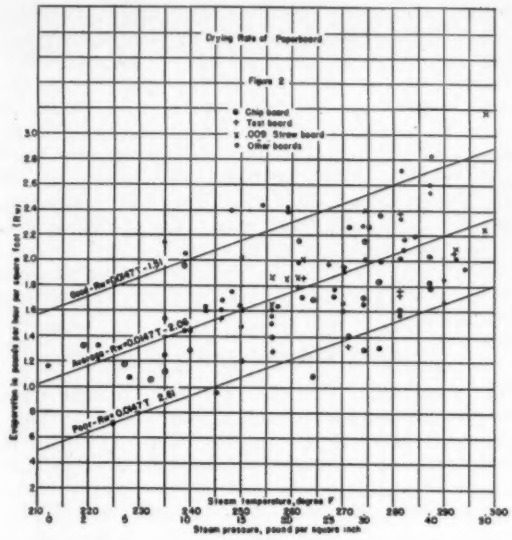

FIG. 2.

By derivation in the same manner as developed by Montgomery for kraft paper *(4)* it is possible to correct any observed drying rate at the observed steam temperature to a standard steam pressure and temperature. For our work we have arbitrarily selected 15 lb. steam pressure (250 deg. F.) as standard, and the formulæ for paperboard become:

(7) R_p (Std.) = R_p (Observed) + 2.21 — 0.00883T (Observed)
(8) R_w (Std.) = R_w (Observed) + 3.66 — 0.0147T (Observed).

Effect of Caliper on Drying Rate

Having corrected the drying rates for all the data submitted to the standard 15 lb. steam pressure these drying rates have been plotted against the caliper of the board. This is shown in Fig. 3.

Although there is considerable variation in the data it is observed there is no pronounced variation of drying rates with caliper. The same thing is true if the drying rates are plotted against basis weight. The conclusion is that on the average, for a given steam pressure, the caliper or weight of board has no marked effect on the drying rate. The conclusion reached for kraft paper *(4)* and for tissue and absorbent papers *(5)* was that the weight of sheet had no effect upon the production drying rate but that the evaporation drying rate dropped off with increased weights. Apparently the data for paperboard do not substantiate this indication.

Effect of Type of Board on Drying Rate

Examination of Figs. 1 and 2 shows there is no definite indication that drying rates are relatively higher or lower on chip, test, 0.009 straw or others. An attempt has been made to determine from the data exactly what variation might be expected by using the drying rates corrected to the standard 15 lb. steam pressure.

119 sets of data indicate the average corrected production drying rate R_p to be 0.97. 100 sets of data on which the evaporation drying rate could be figured indicate the average corrected R_w to be 1.59.

24 sets of data for chip give a R_p corrected of 1.01 or just slightly higher than the average of all boards

reported. 23 sets of data for chip give R_w corrected of 1.62, again just slightly higher than the average of all boards.

Fifteen sets of data for 0.009 straw give R_p corrected = 1.005 and R_w corrected = 1.76. Here the production drying rate R_p is about the same as the average although the evaporation drying rate R_w is higher, presumably because the paper contains more water going on to the driers. Straw paper machines generally have some drier felts which doubtless have an effect on the drying rate.

The conclusion seems to be that the type of paper has no marked effect upon the drying rate for a given steam pressure.

Effect of Final Moisture Content

The statement has been made that the final moisture content to which paper or board is dried has a definite effect upon the drying rate. The data on paperboard bears out this conclusion. 55 sets of data on which the final moisture content was reported as 5 per cent or higher show R_p corrected of 0.995, whereas 47 sets of data having final moisture content less than 5 per cent show an average R_p corrected of 0.987. 55 sets of data with 5 per cent or higher final moisture content show an average R_w corrected of 1.56 whereas 45 sets of data with less than 5 per cent final moisture show only 1.435.

It may be interesting to know that the average of 102 sets of data where moisture content was reported going on the driers showed 64.2 per cent. The average of 106 sets of data reporting moisture leaving the driers was 4.74 per cent. This gives an average of 1.66 lb. of water evaporated per pound of paper dried.

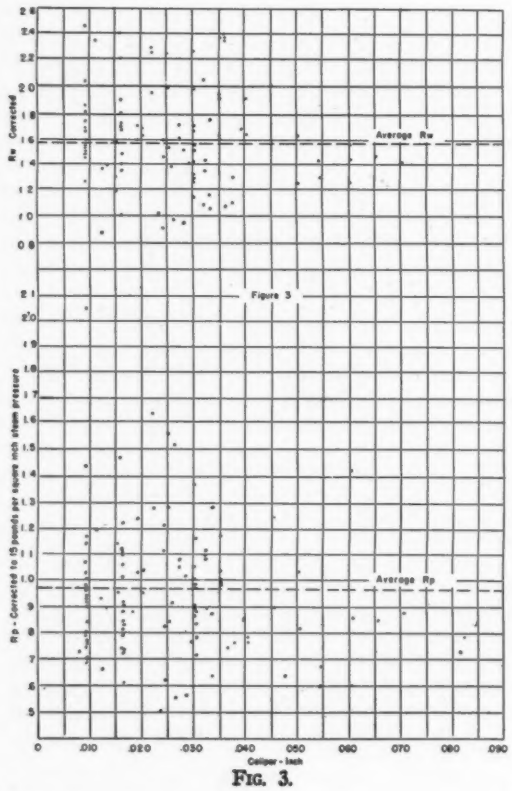

FIG. 3.

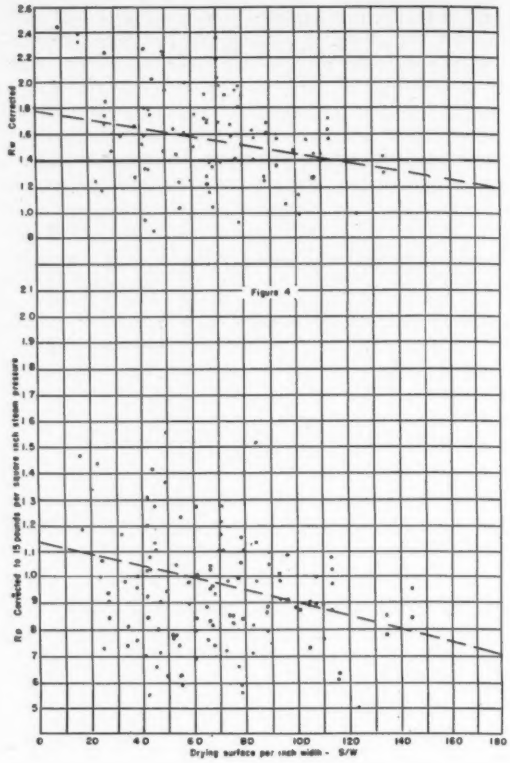

FIG. 4.

Effect of Length of Machine on Drying Rate

In the report for kraft paper *(4)* an indication was noted that the drying rates appeared to be less on long machines than on short ones. The statement was made, "It is frequently stated that as high a drying rate cannot be obtained on a large machine as on a small one. It is to be remembered that drying rate as defined and used here eliminates differences due to loss in trim; we are considering only the 'length' of the machine or, more exactly, the square feet of total drying surface per inch of width."

Fig. 4 shows the drying rates for paperboard corrected to standard 15 pounds steam pressure plotted against drying surface per inch of width (S/W). There appears to be a definite falling off of drying rate for the long machines.

Whether this apparent trend is due to the fact that on the longer machines the paper is put on and taken off of the driers more times, and at a greater speed, we cannot say. The longer machine runs at a higher speed, of course. The explanation is not due to higher moisture content going on to the driers because the same drop is observed in evaporation drying rate. It is noted that a slight preponderance of the longer machines are on lower steam pressure and the shorter machines on higher steam pressure, but even if the steam pressure correction were not entirely correct this preponderance would not afford an adequate explanation.

General Conclusions

Another factor commonly realized as having a considerable effect on the drying rates of board machines is the ventilation around the machine and be-

tween the driers. Of the 102 machines on which data was reported 83 reported vapor absorption air systems and nineteen reported none. The average production drying rate corrected to 15 pounds steam pressure of those having air systems was 1.00 and of those having no air systems was 0.90.

The condition of drier drainage and especially of the removal of air and non-condensable gases from inside the driers is very important and probably accounts to a considerable extent for the remarkable variation in the drying rates at any given steam pressure. Still other factors are the condition of the inside and outside drier surface, the tightness of the draws, hooding of machine and air conditions surrounding the driers.

All of these factors acting together explain the variation in drying rate whereby one machine may achieve twice the drying rate observed on other machines at the same steam pressure.

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Turbulence in Disc Refiners*

By D. Manson Sutherland, Jr.[1]

Abstract

The effect of turbulence or clogging between discs is discussed. The similarity of the refining action of discs in a disc refiner and beaters is pointed out. Factors governing turbulence are noted.

Turbulence in disc refiners has been mentioned in papers presented by the author before the Technical Association *(1)* and has been discussed to a limited extent during TAPPI stuff preparation meetings. *(2)*

The papers referred to have covered such important factors as impact inches, contact inches, clearance or gaps between discs, pressures between discs, speed and diameter of discs, also, discharge orifices to control capacity and dwell time, but the effect of turbulence or its opposite effect, clogging, has not heretofore been investigated although its importance has often been noted by the author and his assistants particularly when refining tests on coarse pulps such as ground wood screenings were being made. More recently the same phenomenon has been observed on comparatively short fibers such as bleached sulphite and bleached sulphate.

Clogging in Beaters

It is commonly known that consistency of the pulp in beaters plays an important part in the speed of circulation and the consistency can be raised to such a degree that circulation in the beater tub will cease, i.e. clogging will occur.

The consistency in a beater which will give the most efficient results depends upon the width and spacing of the bars, the depth of the cells and the speed of the roll. Consistencies varying from 3 to 10 per cent are generally used. Sigurd Smith *(3)* investigated the effect of consistencies in beaters and cites an instance where "The spaces between the bedplate bars were clogged up with stuff, thus causing the cutting effect as well as the power consumption to be reduced." Smith *(3)* also points "to the fact that at the higher consistencies the cells do not gather up and retain as much stuff and the quantity of stuff deposited on the bar edges (fibrages) is therefore smaller than with a thin furnish."

Again Smith *(4)* devotes considerable attention to the conditions governing the formation of fibrages on beater bars and on the translator's note states that fibrages have actually been observed in a jordan.

Comparison Between Disc Refiners and Beaters

The author's papers referred to above have shown that a disc refiner has bars and grooves and its refining action depends upon the width and depth of bars as is the case in a beater. Both require a given number of impact and contact inches in order to process a given amount of pulp in a given time. It is true, however, that in a well designed single rotation disc refiner, the grooves (cells) are usually much smaller than are used in beaters. In general a pair of discs can be compared with the roll and bedplate of a beater because the stationary disc is in effect the bedplate and the rotating disc is in effect the roll.

The most impressive difference between a disc refiner and a beater lies in the tub of the latter. Jordans are similar to disc refiners since no tubs are used but there is at least one beater on the market which has one stationary and one rotating disc surrounded with a tub which is described by Wicker. *(5)*

Fortunately it is comparatively easy to observe the formation of fibrages in a disc refiner by shutting down the disc refiner while under load. Usually the rotating disc will come to rest after five to ten revolutions, i.e. the peripheral speed drops from 4000 f.p.m. to rest in approximately three seconds consequently the fibrages are disturbed as little as possible. The water is then allowed to drain away without disturbing the pressure on the discs and the discs are removed from the refiner for inspection. When the proper consistency has been used and the bars and grooves are properly designed fibrages can be plainly seen on every bar. Conditions have been noted where the fibrages are not quite as wide as the bar itself, but in other cases the fibrages have been found to be carried entirely across a bar and into the next groove.

The different appearance of the fibrages is ap-

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Roosevelt Hotel, New York, N. Y., Feb. 20-23, 1939.

[1] Member TAPPI, Consulting Engineer, Trenton, N. J.

parently due to pressure and gap between the discs. In every case the fibrages are practically at right angles to the bars and the majority of the fibers in the grooves lay in the same direction. The fibrages are drawn over each bar and there is clear indication that friction between the rotating and stationary discs is tearing the fibrages into smaller fractions which in turn causes reduction in classification and freeness.

Cosler *(6)* observes that there is a rolling and twisting action between two discs rotating in opposite directions but after observing the arrangement of the fibers between a stationary and a rotating disc, it is apparent that there is no twisting action. However, the author has been able to spin or twist ground wood screenings, sulphite and sulphate fibers into long threads between oppositely rotating discs. It is questionable if a twisting action in a refiner is proper because some fibers, particularly cotton, form knots easily which are difficult to refine or screen out.

Clogging Between Discs

In 1935 the author commenced tests on refining ground wood screenings using discs that were producing 100 tons of high yield sulphite for newsprint. When operating on ground wood screenings, the capacity would fall off rapidly and if the gap between the discs was not disturbed, the discharge from the refiner would be almost nil and the power consumption would drop down proportionately. Upon examining the screenings in the disc it was noticed that the fiber bundles were lying at right angles to the radial flow. Practically all fines which would pass through 100 mesh screen had been discharged from the discs.

In 1937, laboratory studies on discs which developed a 500-cc. drop on sulphite without clogging showed tendencies to clog when used on strong bleached sulphate requiring a freeness drop of only 250 cc.

In 1938 tests on a 42-inch refiner operating on southern kraft on an experimental basis showed the same tendencies. Clogging was not considered a factor when producing 100 tons per day but when the capacity dropped to 35 tons it was obvious that clogging was occurring.

Reasons for Clogging

In order to study clogging it is necessary to understand the principles of disc design and the refining action between discs. The author *(1)* has described the design of discs in previous papers but when clogging or turbulence is under consideration, it is necessary to remember that a well designed pair of discs actually refines and screens the pulp simultaneously. Obviously both actions take place because each disc has a definite number of small refining grooves through which the pulp must pass. In some cases the grooves are only 3/16 inch semicircular in each disc and comprise 250 in number, consequently the pulp must pass through 6.75 square inches. The area can be increased slightly by opening the gap 0.030 inch but the author has already pointed out in previous papers the disadvantages of wide gaps. The orifice discharge governs the capacity and dwell time between the discs but the refining grooves and bars alone give the desired beating and refining action. Obviously refining grooves which are one-half inch semicircular will not clog as readily as 3/16 inch semicircular but in any given disc area there will be less ½ inch than 3/16 inch grooves and consequently less impact and contact inches.

Cosler *(6)* points out that inch cuts (impact-inches) per minute are not the determining factor in the double rotation refiner but it must be obvious that the inch-cuts play an important part in producing turbulence. Impact-inches (inch-cuts) certainly play an important part in single rotation refiners as well as width and depth of grooves. Improvements in high speed beaters have been largely obtained through increasing the number of impact-inches (inch-cuts) by using wider bedplates.

In a single disc refiner the number of impact-inches per revolution is very important when freeness drop in one pass and power consumption are considered because the bar edges and surfaces are the means by which the beating and refining action takes place. A pair of smooth discs, i.e. without bars or grooves would not produce any commercial results.

The bars, then, try to prevent clogging by rubbing and tearing the fibers but cannot be fully effective unless the grooves are capable of allowing sufficient turbulence. When reference is made to impact and contact inches consideration must be given as to whether they are effective as, when clogging occurs, the effectiveness of the discs falls off sharply regardless of the design and the number of impact and contact inches in the discs.

Factors Governing Turbulence

Turbulence (clogging) depends upon the following factors:

1. Incoming fiber size, shape and stiffness.
2. Consistency.
3. Temperature.
4. Inlet pulp pressure.
5. Area of grooves.
6. Length of grooves.
7. Impact and contact inches per revolution.
8. Angle of bars.
9. Direction of rotation.
10. Speed of rotation.

These factors apply to beaters as well as disc refiners and, since there are so many, the author has perused literature on frictional resistance of pulp in pipes but available data does not seem to pertain to discs since the grooves are, in many cases, only 3/16 inch semicircular and just one disc rotates. The problem is further complicated because it is also necessary to consider the stuff and sheet properties, power consumption and capacity.

In laboratory tests the above factors have been changed repeatedly over a period of six years and steady progress has been made in improving the efficiency of discs. In 1931 a freeness drop in one pass of 500 cc. Green on sulphite for glassine required approximately 1400 h.p. hours per ton, whereas the same freeness drop can now be obtained with only 600 h.p. hours with equal or better stuff and sheet properties.

Literature Cited

(1) Sutherland, D. Manson, Jr., "Refining Action of Discs".—*Tech. Assoc. Papers* XIX: 177 (1936); "Disc Refiner Design & Application."—*Tech. Assoc. Papers* XIX: 197 (1938).
(2) Sutherland, D. Manson, Jr., *Technical Assoc. Papers* XX: 68 (1937); *Tech. Assoc. Papers* XXI: 54 (1938).
(3) Smith, Sigurd, "The Action of the Beater." p. 64, London, *The Tech. Sec. Papermakers Assoc. Gr. Brit. and Ireland* (1923).
(4) Same, p. 181.
(5) Wicker, D. B., *Tech. Assoc. Papers* 20:153-159 (1937).
(6) Cosler, A. S., *Tech. Assoc. Papers* XIX: 282-284 (1936).

NOTE:—Reference has repeatedly been made by the author to the able work of Sigurd Smith and anyone interested in the fundamental principles of design should read his book entitled "The Action of the Beater" published under the Auspices of the Technical Section of the Papermakers Association of Great Britain and Ireland. The author has applied the knowledge gained by reading the work of Dr. Smith in his studies of disc design and performance.

Indianapolis Looks for Betterment

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., March 13, 1939—Little change for the better was seen in the fine paper market here this week. However the general volume appears to be a trifle better than it was during February and jobbers are hoping there will be a change for the better before the end of the month. Prices are being held and credit conditions are unchanged. Printers report there is some business in prospect, but they are waiting until it is closed before buying any stock.

Newsprint demand continues rather dull, or duller than had been expected for this time of the year. Lineage is just a trifle better than last year, but generally speaking, stocks in the hands of publishers are not large and this is some encouragement. Kraft demand also has fallen off somewhat, but this is believed mostly due to seasonal influences and the trade is not much surprised. Prices are holding firm, however. Bags and wrapping paper demand are fair with every indication of increases before the end of the month. Stocks are not large.

Paper box factories are working a little better than was the rule the first two months of the year. There has been a slight expansion in business and many of the factories are building up their warehouse stocks to larger sizes than they have been carrying. Container demand, particularly for waxed containers and those going to the dairy and ice cream trade, is showing a slight increase.

Building paper demand continues good for this season. Most jobbers and retailers are looking for an early spring and are confident the season will be better than last. Stocks in retail hands are not heavy, but they appear to be well balanced. Every effort is being made to hold prices at a reasonable level in order to stimulate construction.

A better demand was reported for best grades of mixed paper the last week. An increase in the price seemed to have a beneficial influence on the market. There appeared to be a better demand for corrugated paper also. Rags were in poor demand, except the best quality, which were moving better.

Strathmore Reelects Officers

All officers and directors of the Strathmore Paper Company, of West Springfield and Woronoco, Mass., were reelected at the annual meeting. Horace A. Moses continues as president. Vice presidents are J. D. Zink and Cassius M. Bryan and the treasurer is George E. Williamson. The assistant treasurers are A. F. Shattuck and F. N. Bridgham, and the clerk is B. F. Stafford.

The treasurer's financial report was not released, but Mr. Williamson said if it had not been for the flood the company would have enjoyed the best year since 1930, but that the damage wrought by the flood will make serious inroads in the earnings of the year.

Marathon Votes Preferred Dividend

[FROM OUR REGULAR CORRESPONDENT]

ROTHSCHILD, Wis., March 13, 1939—Directors of the Marathon Paper Mills Company, meeting at Wausau, Wis. last week voted the regular quarterly dividend of 1½ per cent on preferred stock to shareholders of record as of April 1.

Pulp May Dump in River

GLOUCESTER, Va., March 14, 1939—Judge J. Douglas Mitchell, in Gloucester Circuit Court, sustained a demurrer filed by the Chesapeake Corporation of West Point to a $75,000 suit brought by J. E. Scanlan and M. C. Scanlan, partners doing business as J. E. Scanlan & Bro. The plaintiffs, by their counsel, took an exception to the judge's ruling, which permits them to appeal the case if they see fit.

The plaintiffs sought to recover damages in the sum of $75,000 for injuries they alleged to have suffered by reason of the defendant corporation dumping or allowing to be discharged from its pulp mill at West Point an injurious waste product into the tidal waters at or near the mouth of the Pamunkey River, thereby polluting the tidal waters of the York River and causing the oysters and oyster grounds of the plaintiff to be damaged and become worthless.

Judge Mitchell, in an exhaustive opinion covering 17 typewritten pages, cited numerous decisions in the Virginia courts and concluded:

"It seems to the Court from the authorities, both in Virginia and elsewhere, dealing with cases similar to the case at bar, they differentiate between two general principles: (1) "so use your own as not to injure another," (2) "damage without injury," and the line of differentiation seems to be drawn between the exercise of "public right" and "private right." The court is of the opinion from the authorities cited that the use and enjoyment by the people of the tidal waters and their bottoms for the purpose of taking fish and shellfish therefrom is not an inherent and inseparable incident of the governmental powers or jus publicum of the State, but is an incident of the jus privatum of the State, and it further appears to the court from the authorities in Virginia that the use of the tidal waters for the discharge of sewage is a public use and that to what extent they shall be devoted to purposes of fishery, and the restrictions and limitations to be placed on these several uses, are questions committed by the Constitution to the discretion of the Legislature free from the control or interference of either the executive or judicial departments of the government.

To Pass on American Writing Contracts

[FROM OUR REGULAR CORRESPONDENT]

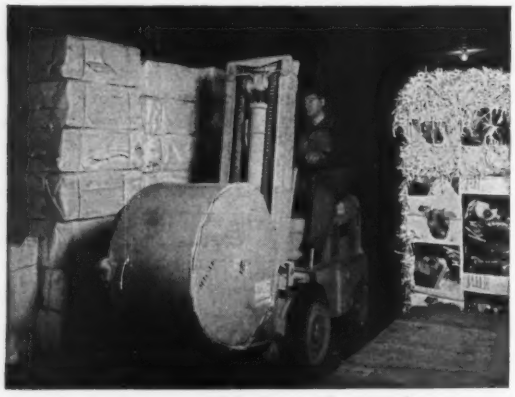
BOSTON, Mass., March 13, 1939—A hearing will be held in the United States District Court, here, before Judge Hugh D. McLellan, on March 20 at 11 A.M., for the purpose of considering and passing upon four contracts dated March 1, 1939, between the Holyoke Water Power Company and American Writing Paper Corporation. Any creditor or stockholder of American Writing Paper will be given opportunity on March 16, 17 and 18 to examine the contracts on file with the court.

Index Nickel Bulletins

The International Nickel Company, 67 Wall street, New York, has just issued an index of the series of bulletins published by the company describing properties, applications and production of nickel as a foundry tool to improve the castability, soundness and strength of brass and bronze.

Clark Carloader

Designed for loading and unloading freight cars and for handling cargo in and out of stowage space, the Clark Carloader, just introduced by the Clark Tructractor, Battle Creek, Mich., has a 38″ overall width, 38″ wheel base, 6″ inside turning radius, 67″ outside turning radius and will turn around in a box car without backing. It picks up the load, lifts it, tilts it back 10 degrees for safe carrying, carries it at speeds ranging from 1 to 7 m.p.h., elevates it, tilts it forward 2 degrees for easy tiering. It is gas-powered, for continuous operation.



CARLOADER IN OPERATION.

A special attachment is available which can be used in place of standard fingers. This is a readily removable hardened, steel, tapered lift plate attachment which can be used to advantage on many operations involving the handling of materials not loaded on skids or pallets. This would include such commodities as barrels, kegs, drums, castings, heavy wooden boxes, crates, etc.

The thin lip of the plate can be forced under the load when it is standing on the floor or between units of material when stacked.

Low center of gravity, square tread and wheelbase give the Carloader maximum stability. Front wheel drive and rear wheel steer enable the operator to enter a box car and make a right angle turn. Spotting loads in the car is accomplished without backing. The driver is protected by the steel uprights, through which he has clear view of the steel finger tips, enabling him to pick up loads quickly.

The machine is made in straight models of 2,000, 3,000 and 3,500 lb. capacities, tiering to 60 inches, and three telescopic models of corresponding capacities that will tier loads in box cars with 10 feet and 12 inch ceilings, filling them to maximum capacity while also being able to tier to 108 inches in the warehouse. Hydraulic lift mechanism is operated by an engine-driven pump, providing ample fluid power. All models have self-starter, hydraulic brakes, automotive type controls, oil bath air cleaner, removable cartridge type oil filter.

It is the extreme maneuverability of this equipment which effects unusual savings. Not only are time and labor saved in loading and unloading box cars and ships, but warehousing costs are cut by adding to the capacity of a given floor area—air rights are utilized by quick, easy, high piling.

A Useful Stebbins Booklet

A booklet published by the Stebbins Engineering and Manufacturing Company, of Watertown, N. Y., will be extremely useful to plant superintendents in the pulp, paper and other process industries using small or large cylindrical tanks for either storage or processing purposes.

A table showing the capacities of cylindrical, vertical tanks occupies one full page. Diameters from 1′ 0″ to 100′ 0″ are listed in one column, the cubic feet capacity, and the gallon capacity—in both U. S. gallons and also in Imperial gallons—appear in adjcent columns.

Tables of circles—from 1″ diameter to 100′ 0″—occupy seven pages and should prove particularly valuable, as they cover the complete range of sizes in feet and inches, by inches. The circumference and the area in square feet for every diameter are also given, thus anyone can see at a glance that a vessel 61′ 11″ in diameter has a circumference of 194.52 feet and an area of 3010.96 square feet.

One table shows the volume and area of spheres of different diameters listed by fractions from 1/32″ to 3-15/16″ and gives their respective volumes (in cubic feet) and areas (in square feet). Another table covers spheres from 4′ 0″ diameter to 50′ 0″ being listed by feet and inches. Yet another table is devoted to decimals of an inch and a foot giving the decimals of fractions from 1/16′ and 1/6″ to 12′ and 1″.

Altogether, this book of tables contains considerable information in handy form and its use should save much troublesome figuring for anyone having occasion to deal with capacities, circumferences, areas, etc., of vessels and tanks. A copy can be obtained free on application to the Stebbins Engineering and Manufacturing Company, Watertown, N. Y.

Walter Paepcke to Speak

In addition to the very interesting program already made public in connection with the annual meeting of the Waste Paper Institute to be held in Chicago on Wednesday forenoon, March 22, in connection with the convention of the National Association of Waste Material Dealers, Inc., a statement was issued this week from association headquarters to the effect that Walter Paepcke, president of the Container Corporation of America had accepted an invitation to address the members of the Institute.

Mr. Paepcke's wide experience in the paperboard business and his knowledge of developments of the industry in the South, assure those who attend the meeting of a very interesting address.

To Resume Former Power Connection

HOLYOKE, Mass., March 13, 1939—Following an announcement that certain litigations between the American Writing Paper Corporation, and the Holyoke Water Power Company, had been amicably adjusted, notice was served on the municipal Gas and Electric department that the paper corporation would terminate its power service with that department as of April 1 and resume its power connection with the Holyoke Water Power Company. This followed a suspension of four years. The change causes a loss of revenue to the municipal department ranging from $35,000 to $42,000 per year.

Imports of Paper and Paper Stock

Giving Manifests of New York, Boston, Philadelphia and Other Ports of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard, Wallboard, Cigarette Papers, Sulphite, Kraft and Ground Wood Pulp.

NEW YORK IMPORTS

WEEK ENDING MARCH 11, 1939

SUMMARY

Cigarette paper	504 cs.
Painted paper	11 bls.
Newsprint	5,124 rolls
Printing paper	27 bls., 14 rolls
Wrapping paper	182 rolls
Drawing paper	8 cs.
Surface coated paper	57 cs., 1 ble.
Photo paper	6 cs.
Marbled paper	4 cs.
Decalcomania paper	13 cs.
Tissue paper	16 cs.
Envelopes	14 cs.
Asbestos paper	1 cs.
Tracing cloth	16 cs.
Gummed paper	3 cs.
Cardboard	30 cs.
Miscellaneous paper	226 cs., 71 bls.

CIGARETTE PAPER

De Mauduit Paper Corp., *Oregon,* Havre, 1 cs.
Braunstein Freres, Inc., *Paris,* Havre, 98 cs.
Champagne Paper Corp., *Paris,* Havre, 403 cs.
De Mauduit Paper Corp., *Paris,* Havre, 2 cs.

PAINTED PAPER

American Express Co., *Paris,* Havre, 11 bls.

NEWSPRINT

N. Y. Evening Journal, *Markland,* Liverpool, N.S., 736 rolls.
N. Y. Tribune, Inc., *Markland,* Liverpool, N.S., 1,420 rolls.
World Telegram, *Markland,* Liverpool, N.S., 586N rolls.
Brooklyn Daily Eagle, *Markland,* Liverpool, N.S., 381 rolls.
Herald Statesman, Inc., *Markland,* Liverpool, N.S., 42 rolls.
Jay Madden Corp., *Manhattan,* Finland, 261 rolls.
Lunham & Reeve, Inc., *Carolina Thorden,* Kotka, 233 rolls.
Jay Madden Corp., *Carolina Thorden,* Kotka, 1,087 rolls.
N. Y. Evening Journal, *Carolina Thorden,* Kotka, 146 rolls.
Jay Madden Corp., *Augsburg,* Finland, 232 rolls.

PRINTING PAPER

Keuffel & Esser Co., *Manhattan,* Hamburg, 14 rolls.
Walker Foulard Plehn Co., *Carolina Thorden,* Kotka, 27 bls.

WRAPPING PAPER

Jay Madden Corp., *Manhattan,* Finland, 182 rolls.

DRAWING PAPER

Keuffel & Esser Co., *Manhattan,* Hamburg, 8 cs.

SURFACE COATED PAPER

——, *Gerolstein,* Antwerp, 2 cs., 1 ble.
Gevaert Co. of America, *Pennland,* Antwerp, 55 cs., (unfinished photo-paper).

PHOTO PAPER

Medo Photo-Supply Co., *Andania,* Liverpool, 1 cs.
J. J. Gavin Co., *Queen Mary, Southampton,* 5 cs., (unsensitized).

MARBLED PAPER

Borden Riley Paper Co., *Georlstein,* Antwerp, 4 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., *Andania,* Liverpool, 60 cs., (duplex), 13 cs., (simplex).

TISSUE PAPER

Hy-sil Manfg Co., *Kunikawa Maru,* Kobe, 10 cs.
Dingelstedt & Co., *American Importer,* Liverpool, 6 cs.

ENVELOPES

Globe Shipping Co., *Manhattan,* Hamburg, 14 cs.

ASBESTOS PAPER

Philip Carey Co., Inc., *Port St. John,* Dunedin, 1 cs.

TRACING CLOTH

A. Field & Co., Inc., *Andania,* Liverpool, 2 cs.
E. Deitzgen & Co., Inc., *American Importer,* Manchester, 14 cs.

GUMMED PAPER

W. A. Foster & Co., *American Importer,* Liverpool, 3 cs.

CARDBOARD

Flexideal, Inc., *Paris,* Havre, 30 cs.

MISCELLANEOUS PAPER

Remington Rand, Inc., *Yamagiri Maru,* Kobe, 28 cs.
Japan Paper Co., *Yamagiri Maru,* Kobe, 58 cs.
American Express Co., *Manhattan,* Havre, 52 cs.
E. Fougera & Co., *Oregon,* Havre, 57 cs.
Rohner Gehrig & Co., *Oregon,* Havre, 3 cs.
Gevaert Co. of America, *Pennland,* Antwerp, 2 cs.
A. Giese & Son, *Paris,* Havre, 71 bls., 2 cs.
Rohner Gehrig & Co., *Paris,* Havre, 2 cs.
——, *Paris,* Havre, 22 cs.

RAGS, BAGGINGS, ETC.

Chase National Bank, *Kuznitz Lesov,* Leningrad, 576 bls. linen rags, 1,677 bls. bleached linters.
——, *Kunikawa Maru,* Kobe, 65 bls. rags.
Glaser Jaffe Woolstock Co., *Andania,* Liverpool, 23 bls. new cuttings.
——, *Andania,* Liverpool, 25 bls. rags.
Richard Shipping Co., *Black Tern,* Antwerp, 75 bls. rags.
Reliance Commodities Corp., *Black Tern,* Rotterdam, 10 bls. rags.
D. Bennedetto, Inc., *Black Tern,* Rotterdam, 120 bls. bagging.
G. W. Miller & Co., Inc., *Black Tern,* Rotterdam, 63 bls. bagging.
——, *American Importer,* Manchester, 10 bls. rags.
——, *Veendam,* Rotterdam, 5 bls. waste canvas cuttings.
Darmstadt Scott & Courtney, *Veendam,* Rotterdam, 103 bls. bagging, 24 bls. oil bag scrap.
Continental Bank Trust Co., *Veendam,* Rotterdam, 74 bls. rags.

HIDE CUTTINGS

——, *Andania,* Liverpool, 564 bags.

OLD ROPE

W. Steck & Co., *Black Eagle,* Rotterdam, 38 coils.

CHINA CLAY

English China Clays Sales Corp., *Andania,* Liverpool, 160 bags.

WOOD PULP

Gottesman & Co., Inc., *Bergensfjord,* Norway, 600 bls. wood pulp.
Pulp Sales Corp., *Carolina Thorden,* Kotka, 1,210 bls. mechanically ground pulp, 2,225 bls. sulphate.
Pulp Sales Corp., *Scanyork,* Rauma, 3,262 bls. sulphite, 553 tons.
——, *Black Eagle,* Rotterdam, 125 bls. wood pulp, 25 tons.

WOOD PULP BOARDS

Jay Madden Corp., *Carolina Thorden,* Kotka, 309 bls.

PORTLAND IMPORTS

WEEK ENDING MARCH 11, 1939

Gotterman & Co., Inc., *Hallaren,* Sweden, 250 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING MARCH 11, 1939

J. W. Garry Co., Inc., *Nosiro Maru,* Yokohama, 2 cs. wall paper.
——, *Black Eagle,* Rotterdam, 64 bls. rags.
Irving Trust Co., *Black Eagle,* Rotterdam, 68 bls. old rope.

——, *Black Eagle,* Antwerp, 17 bls. cotton waste, 222 bls. rags.
Stone & Downer Co., *Black Eagle,* Antwerp, 132 rolls wrapping paper.
International Purchasing Co., *Black Eagle,* Antwerp, 50 bls. old rope.
American Express Co., *Black Eagle,* Antwerp, 5 cs. stencil paper.

PHILADELPHIA IMPORTS

WEEK ENDING MARCH 11, 1939

Russell Products Co., *Giulia,* Genoa, 10 cs. stereotype paper.
E. J. Keller Co., Inc., *Black Tern,* ——, 250 bls. rags.

WILMINGTON IMPORTS

WEEK ENDING MARCH 11, 1939

Bulkley Dutton Pulp Co., Inc., *Scanyord,* ——, 300 bls. sulphite, 50 tons.
Pulp Sales Corp., *Scanyord,* Helsingfors, 3,430 bls. sulphite, 686 tons.
Pulp Sales Corp., *Scanyork,* Rauma, 5,936 bls. sulphite, 1,032 tons; 176 bls. mechanically ground pulp, 35 tons.

BALTIMORE IMPORTS

WEEK ENDING MARCH 11, 1939

Pulp Sales Corp., *Carolina Thorden,* Kotka, 748 bls. bleached sulphate, 230 bls. sulphate.
Castle & Overton, Inc., *Carolina Thorden,* Kotka, 932 bls. dry unbleached wood pulp.
Jay Madden Corp., *Carolina Thorden,* Kotka, 1,383 rolls newsprint, 167 bls. wood pulp boards.
Hearst Consolidated Publications, Inc., *Carolina Thorden,* Kotka, 794 rolls newsprint.
Pulp Sales Corp., *Carolina Thorden,* Helsingfors, 1820 bls. mechanically ground pulp.
Lagerloef Trading Co., *Carolina Thorden,* Helsingfors, 520 bls. mechanically ground pulp.
Gottesman & Co., Inc., *Bertha Fisser,* Sweden, 8,220 bls. wood pulp.
Price & Pierce, Ltd., *Bertha Fisser,* ——, 300 bls. unbleached sulphate.

NORFOLK IMPORTS

WEEK ENDING MARCH 11, 1939

Price & Pierce, Ltd., *Malaren,* ——, 7,264 bls. unbleached sulphite.

February Newsprint Statistics

Production of newsprint in Canada during February 1939 amounted to 200,631 tons and shipments to 178,236 tons, according to the News Print Service Bureau. Production in the United States was 70,868 tons and shipments 71,926 tons, making a total United States and Canadian news print production of 271,499 tons and shipments of 250,162 tons. During February, 22,129 tons of news print were made in Newfoundland, so that the total North American production for the month amounted to 293,628 tons. Total production in February 1938 was 286,530 tons.

The Canadian mills produced 16,088 tons less in the first two months of 1939 than in the first two months of 1938, which was a decrease of three and eight tenths per cent. The output in the United States was 14,261 tons or ten and seven tenths per cent more than in the first two months of 1938, in Newfoundland 752 tons or one and seven tenths per cent less, making a net decrease of 2,579 tons, or four tenths of one per cent.

Stocks of news print paper at the end of February were 190,363 tons at Canadian mills and 21,822 tons at United States mills, making a combined total of 212,185 tons compared with 190,848 tons on January 31, 1939. During the winter some tonnage is accumulating at points from which water shipments will later be made.

Italy Wants Better Pulp Supply

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 8, 1939—A determined effort is beind made in Italy to assure an adequate domestic supply of chemical pulp, according to the Forest Products Division, Department of Commerce.

As this item is the basic material not only for the manufacture of paper but for artificial fibers and explosives, the relatively small domestic production has in recent years become an acute economic problem, it was pointed out.

Italian consumption of chemical pulp at the present time approximates 310,000 short tons annually of which more than three-fourths must be imported, statistics show.

For a number of years Italian chemists have been experimenting to determine the possibility of substituting corn stalks, wheat straw, hemp stalks, and other similar items for coniferous wood in the production of wood pulp.

The most satisfactory results are reported to have been obtained from a certain type of cane. A large section in one of the reclaimed areas has already been planted to this cane by a large rayon-producing company and by the end of 1940 it is estimated in Italy that this company will have obtained an annual production of about 88,000 tons of chemical pulp. Other industrial groups are expected to purchase land and erect similar plants, it was stated.

If the Italian campaign as formulated is carried through production of chemical pulp in that country should reach 215,000 tons short annually within five years, a total which is approximately 95,000 short tons of the country's requirements. It would be possible to make up this deficiency within a relatively short period by other plants utilizing the same program, acording to the Department of Commerce.

Charles Ray Goes With Tissue Mills

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., March 13, 1939—Charles Ray of Manchester, Conn., was last week named general manager of the American Tissue Mills, Inc., of this city. He assumed the position formerly held by Benjamin F. Perkins. The latter continues as president.

He was formerly president and general manager of the Rogers Paper Company of Manchester, Conn., where he had been associated since 1920. With certain associates, he had purchased the company some years ago and in last June, resigned from the organization.

Homer Sinclair, superintendent and general manager of the waxed paper division, resigned last week. His successor has not been chosen.

John Stark, manager of the Crescent-Street plant, resigned as of March 1 and he is succeeded by Edward Forbes, formerly of the Strathmore Paper Company.

Detroit Paper Products Report Loss

The Detroit Paper Products Corporation reports as follows for 1938:—Net loss, $161,605, contrasted with net income in 1937 of $111,401, equal after dividends paid on preferred stock issued July 17, 1937, to 39 cents each on 240,000 common shares.

LATEST MARKET REVIEW

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, March 15, 1939.

Improvement in sales volume in the wholesale paper market is reflected in the reports received from many manufacturers' representatives, jobbers, and general paper merchants for this week. More optimism is present in the trade as to the future course of business and while this renewed confidence may be more directly attributed to the encouraging attitude of the Government and to general business prospects, than to any marked increase at this date in sales, the prevailing opinion seems to be that a revival in business is now underway.

Increased general business activity is indicated in the index of general business activity, which advanced for the week ended March 4, from 88.0 per cent to 89.5 per cent, compared with 79.6 per cent for the corresponding period last year. All the components which form this index, including the production of paper advanced, and declines from the preceding week occurred in only miscellaneous carloadings and in lumber output. The favorable factors underlying the business situation appear to more than offset the unfavorable ones and a revival of general business appears in prospect.

Production of over 200 paper mills was 81.6 per cent for the week ended March 4, compared with 80.4 per cent for the preceding week, and with 67.8 per cent for the corresponding period last year. Paper board production for a like period was 68.0 per cent, compared with 59.0 per cent for the week ended March 5 last year.

Newsprint consumption continues to gradually increase, prices are firm and continued improvement is expected in the trade as general business becomes increasingly active.

The demand for many grades of paper is reported as a little improved for the current week. Sales of book paper, which had declined last year well below trade expectations, has improved substantially this year and this improvement continues. Groundwood papers are reported in better demand this week. Sales of some grades of sulphite bonds are higher. The demand for the medium and lower qualities of writing papers is reported as much improved and business in this division of the paper industry for March is substantially higher than for last month.

Kraft paper production continues to be well maintained, although merchants are reported to have rather large stocks on hand at this date and orders for wrapping papers are under expectations. Prices are firm and the outlook is favorable.

The paper board market is reported as strong and a marked improvement in sales volume is reported in some quarters of the trade for the week. Prices remain firm and unchanged in the metropolitan territory.

Mechanical Pulp

A little improvement in the demand for mechanical pulp is reported this week. Prices continue firm and conform to prevailing market quotations.

Chemical Pulp

No important change in demand or prices has been reported in chemical pulp for this week. Consumption of pulp continues at a good level and stocks in storage on the docks are steadily being reduced. A somewhat better tone in the market is reported in some quarters of the pulp trade. Prices remain unchanged.

Old Rope and Bagging

The demand for old rope is reported as light and business slow for the week. Current trading is of such small volume that prices are practically nominal on the basis of prevailing market quotations. Demand continues light in old bagging, with prices somewhat firmer, although no change from prevailing quoted prices has been reported to date.

Rags

No important change has occurred in the domestic rag market this week. The roofing grades continue active but little improvement or change in demand has been reported in any grade of new or old domestic rags of paper-making grades. Prices remain firm and unchanged, with the exception of No. 1 new white shirt cuttings, which are lower this week and currently quoted at $6.60 to $6.85 per cwt. The foreign rag market is inactive and prices are nominal.

Old Waste Paper

The prices of old waste paper continue firm and demand steady on many grades. A better tone in this market is reported in some quarters, with mills steadily absorbing dealer stocks. No important change in prices has been reported for the current week.

Twine

A little improvement in demand has been reported in a few grades of twine for this week. Prices continue firm on all grades of hard and soft fiber twines and remain unchanged.

H. T. Martin To Be Labor Commissioner

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., March 13, 1939—Harold T. Martin of Boston has been named labor commissioner of the Western Massachusetts paper manufacturers to succeed the late Adam Wilkinson of Holyoke. Mr. Martin resigned last week from the position of New England Regional representative of the Social Security Board's Bureau of Unemployment Compensation, which position he has held since April 1937. At one time, he was personnel director of the Fisk Rubber Company.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, March 15, 1939.

BLANC FIXE—Prices on blanc fixe remain firm and unchanged at prevailing market quotations. The pulp is quoted at from $42.50 to $45 per ton; the powder is offered at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER—Quotations on bleaching powder continue firm at prevailing market levels. Bleaching powder is quoted at from $2 to $2.25 per 100 pounds, in drums, at works.

CASEIN—The demand for casein is reported as fair for the current week. Standard domestic ground casein, 20-30 mesh, is quoted at from 8 to 8½ cents per pound; 80-100 mesh at from 8½ to 9 cents per pound; all prices in bags, car lot quantities.

CAUSTIC SODA—Prices on caustic soda continue firm at prevailing market quotations. Solid caustic soda is quoted at from $2.10 to $2.30 per 100 pounds; flake and ground at from $2.50 to $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Quotations on china clay are firm and unchanged at prevailing market prices. Domestic filler clay is quoted at from $6.50 to $12 per ton; coating clay at from $11 to $22 per ton, at mines. Imported clay is quoted at from $13 to $25 per ton, ship side.

CHLORINE—Prices on chlorine continue firm and conform to prevailing market quotations. Chlorine is quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The demand for rosin is fair for the week. "G" gum rosin is quoted at $5.45; "F" wood rosin at $4.35, per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent gum rosin size is quoted at $2.89 per 100 pounds, f.o.b., shipping point.

SALT CAKE—Quotations on salt cake continue firm and conform to prevailing market prices. Quotations range at from $12 to $13.50 per ton; chrome salt cake at from $11 to $12 per ton, f.o.b., shipping point. Imported salt cake is quoted at from $14.50 to $15 per ton, Gulf or Atlantic Seaboard, on dock.

SODA ASH—Prices on soda ash are firm and unchanged at prevailing market quotations. Prices on soda ash in car lots, at works, per 100 pounds, are as follows: in bulk, $.90; in bags, $1.05; and in barrels, $1.35.

STARCH—The demand for corn starch continues relatively good. Prices are unchanged at prevailing market quotations. Globe pearl is quoted at $2.50 per 100 pounds; special paper starch at $2.60 per 100 pounds. All prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina remain firm and conform to prevailing market prices. The commercial grades are quoted at $1.15; iron free at $1.30 per 100 pounds, in bags, car lot quantities, f.o.b., works.

SULPHUR—Prices on sulphur remain firm at prevailing market levels. Annual contracts are quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are offered at $19 per ton.

TALC—Quotations on talc continue firm and conform to prevailing market prices. Domestic talc is quoted at from $15 to $18 per ton, Eastern mines. Imported talc is offered at from $20 to $40 per ton, on dock.

Market Quotations

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	58.00	@	—
Kraft—per cwt.—Delivered Zone A			
No. 1 Northern	$4.75	@	$5.25
Superstandard	4.12½	@	4.62½
Northern Standard Wrapping	4.00	@	—
Standard Wrapping	3.50	@	—
Tissues—Per Ream—Carlots			
White No. 1	.92½	@	—
White No. 1 M. G.	.90	@	—
White No. 1½	.67½	@	—
White No. 2	.60	@	—
Anti-Tarnish M. G.	.75	@	—
Colored	.87½	@	—
Kraft	.75	@	—
Manila	.60	@	—
Unbl. Toilet, 1 M.	3.20	@	—
Bleached Toilet	5.26	@	—
Paper Towels—			
Unbleached	1.80	@	—
Bleached	2.10	@	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	8.25	@	9.75
No. 2 Jute	7.50	@	9.00
No. 1 Manila Wrapping, 35 lb.	5.00	@	—
No. 2 Manila Wrapping, 35 lb.	4.75	@	—
Boards, per ton—			
News	27.50	@	30.00
Chip	27.50	@	30.00
Sgl. Mla. Ll. Chip	42.50	@	—
Jute Lined Chip	42.50	@	45.00
White Pat. Coated	55.00	@	57.50
Kraft Liners	42.50	@	45.00
Binders Boards	71.00	@	77.00

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds		Ledgers	
100% Rag Ext. No. 1	$39.10	@ $46.00	$40.25	@ $47.25
100% Rag	31.05	@ 36.50	32.20	@ 37.75
85% Rag	.....		29.90	@ 35.00
75% Rag	23.60	@ 27.75	24.75	@ 29.00
65% Rag	.....		21.65	@ 26.25
50% Rag	17.55	@ 21.50	18.70	@ 22.75
25% Rag	14.65	@ 17.75	15.80	@ 19.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds		Ledgers	
No. 1	$8.60	@ $10.50	$9.75	@ $12.00
No. 2	7.70	@ 9.50	8.90	@ 10.75
No. 3	6.85	@ 8.25	8.00	@ 9.75
No. 4	6.45	@ 7.75	7.60	@ 9.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper, Delivered in Zone 1:

No. 1 Glossy Coated	$11.30	@	$12.75
No. 2 Glossy Coated	9.70	@	11.00
No. 3 Glossy Coated	8.60	@	10.00
No. 4 Glossy Coated	8.05	@	9.25
No. 1 Antique (watermarked)	8.05	@	9.25
No. 2 Offset	7.45	@	8.50
A Grade E. F.	7.20	@	8.25
A Grade S. & S. C.	7.45	@	8.50
B Grade E. F.	6.65	@	7.75
B Grade S. & S. C.	6.90	@	8.00
C Grade E. F.	6.40	@	7.50
C Grade S. & S. C.	6.65	@	7.75
D Grade E. F.	6.10	@	7.00
D Grade S. & S. C.	6.35	@	7.25

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	25.00	@	28.00
Dry	25.00	@	28.00
(Delivered)			
No. 1 Domestic and Canadian	29.00	@	33.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	2.25	@	2.75
Prime Qualities—			
Easy-Bleaching Sulphite	1.90	@	2.00
Strong Unbleached Sulphite	1.80	@	1.95
(On Dock, Atlantic Ports)			
Kraft Bleached	2.50	@	2.75
Kraft Light & Strong	1.60	@	1.75
Kraft No. 1	1.45	@	1.60
Kraft No. 2	1.35	@	1.40
(F. o. b. Pulp Mill)			
Kraft Domestic	1.25	@	1.75
(Delivered)			
Soda Bleached	2.55	@	—

Add 60 cents per short ton, dock charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1.	6.60	@	6.85
Silesias No. 1	4.00	@	4.25
New Unbleached	6.50	@	6.75
Blue Overall	4.90	@	5.00
Fancy	2.00	@	2.15
Washables	1.50	@	1.60
Mixed Khaki Cuttings	3.00	@	3.25
O. D. Khaki Cuttings	4.00	@	4.10

Old Rags

White, No. 1—			
Repacked	2.90	@	3.15
Miscellaneous	2.10	@	2.25
White, No. 2—			
Repacked	1.50	@	1.60
Miscellaneous	1.25	@	1.40
Thirds and Blues—			
Repacked	1.30	@	1.40
Miscellaneous	1.15	@	1.20
Roofing Rags—			
No. 1	1.05	@	1.10
No. 2	.75	@	.80
No. 3 (bagging)	.55	@	.65
No. 4	.60	@	.65
No. 5A	.60	@	.65

Foreign Rags

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	@	2.20
New Light Silesias	5.50	@	5.75
Light Flannelettes	5.50	@	5.75
New White Cuttings	7.00	@	7.50
New Light Oxford	4.00	@	4.50
New Light Prints	3.00	@	3.25

Old Rags

No. 1 White Linens	7.50	@	8.50
No. 2 White Linens	6.50	@	7.50
No. 3 White Linens	4.50	@	—

J. Andersen & Co.

Selling Agents

21 East 40th Street

New York

CHEMICAL & MECHANICAL PULP

Kraft Pulp

SUNDSVIK OCH ALA NYA AKTIEBOLAG
Söderhamn, Sweden
SAAK TRÄINDUSTRI AKTIEBOLAG
Vansbrofjorden, Sweden
MUNKSUNDS AKTIEBOLAG
Munksund, Sweden
HENSJÖ CELLULOSA A.-B.
Sprängsverken, Sweden

Bleached Sulphite

KRAMFORS-WIGGINSTON PAPER PULP CO., LTD.
Sarpsborg, Norway
Edsvalla, Sweden
Hallein & Villach, Austria

Unbleached Sulphite

AKTIESELSKABET GREAKER CELLULOSEFABRIK
Greaker, Norway
SUNDSVIK OCH ALA NYA AKTIEBOLAG
Söderhamn, Sweden
CELLULOSEFABRIKK A.-S.
Bruflotten, Czecho-Slovakia
SVANÖ AKTIEBOLAG
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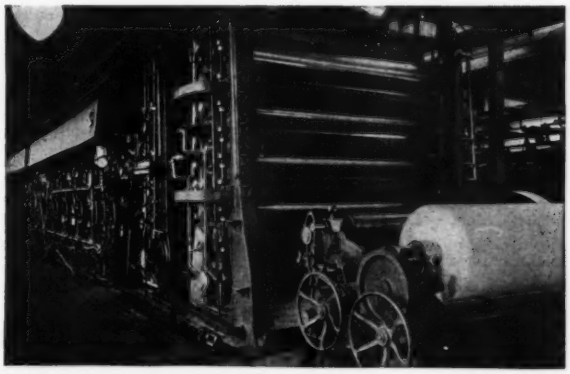
All kinds and styles of Felts for all kinds and styles of Papers.

Write us about your Felt problems and let us help you reduce your Felt Costs—we will call anywhere at any time.

DRAPER BROS. COMPANY

CANTON, MASS.

Woolen manufacturers since 1856



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For trouble-free, economical performance over a long life be sure your calender stacks are equipped with Farrel Rolls.

They are the product of skill developed by more than 80 years' experience in roll making, the use of only the highest grade materials, constant scientific research, and close control of every manufacturing process from metal mixture and casting to grinding and inspection.

Made in chilled iron or extra hard "Farreloy," in any diameter from 4" to 72" and any face length up to 312".

FARREL-BIRMINGHAM COMPANY, INC.
50 State St., Ansonia, Conn.

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UNIFORM • SUPERIOR • DEPENDABLE

English China Clays Sales Corporation
551 Fifth Avenue, New York City

No. 4 White Linens.	2.25	@	3.25
No. 1 White Cotton.	4.25	@	4.75
No. 2 White Cotton.	3.25	@	3.75
No. 3 White Cotton.	2.50	@	3.00
No. 4 White Cotton.	1.90	@	2.20
Extra Light Prints..	2.00	@	2.40
Ord. Light Prints...	1.75	@	2.15
Med. Light Prints...	1.55	@	1.95
Dutch Blue Cottons.	2.25	@	2.50
French Blue Linens..	3.00	@	—
Checks and Blues...	2.00	@	—
Linsey Garments....	1.90	@	2.00
Dark Cottons.....	1.50	@	1.60
Old Shopperies.....	1.30	@	1.45
New Shopperies.....	1.45	@	1.50
French Blues.....	2.25	@	2.50

Old Rope and Bagging

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.75	@	1.90
Domestic	1.70	@	1.80
Wool Tares, light....	1.60	@	1.70
Wool Tares, heavy...	1.80	@	1.90
Bright Bagging.....	1.60	@	1.70
Manila Rope—			
Foreign	2.60	@	2.75
Domestic	2.00	@	3.00
Jute Threads.....	2.75	@	3.00
Sisal Strings.....	1.50	@	1.60
Mixed Strings.....	.55	@	.60

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.30	@	2.40
Ordinary Hard White No. 1....	1.90	@	2.00
Soft White No. 1..	1.60	@	1.75
Soft White Extra..	2.25	@	2.40
Flat Stock—			
Stitchless	.80	@	.85
Overissue Mag.....	.70	@	.75
Solid Flat Book...	.55	@	.60
Crumbled No. 1...	.40	@	.45
Ledger Stock White.	1.10	@	1.20
Ledger Stock Colored	.60	@	.70
New B. B. Chips....	.15	@	.20
Manila—			
New Env. Cut.....	1.40	@	1.50
New Cuttings.....	1.00	@	1.20
Old Kraft Machine—			
Compressed bales..	.60	@	.65
News—			
No. 1 White News	1.25	@	1.30
Strictly Overissue..	.40	@	.45
Strictly Folded....	.37½	@	.42½
No. 1 Mixed Paper..	.17½	@	.22½

Twines

(F. o. b. Mill)
(Soft Fiber)

Coarse Polished—			
India	.12¾	@	.14¼
White Hemp.....	.13¾	@	.15¾
Fine Polished—			
Fine India.....	.16	@	.18
Unpolished—			
Box	.09½	@	—
Paper Makers.....	.09½	@	.10½
Tube Rope.....	.10¾	@	.12½
Wall Paper.....	.10¾	@	.12½
Wrapping	—	@	—
Soft Fiber Rope...	.12	@	.14
Cotton	.17	@	.26
(Hard Fiber)			
Medium Java.....	.11	@	.17
Mex. Sisal.....	.10	@	.16
Manila	.16	@	.23

Domestic	2.65	@	2.75
Sisal Rope.....	1.75	@	1.85
Mixed Rope.....	.40	@	.50
Transmission Rope...	1.90	@	2.00
Soft Jute Ropes.....	1.90	@	2.00
Jute Carpet Threads.	.75	@	.90
Gunny Bagging—			
Foreign	1.65	@	1.80
Domestic	1.50	@	1.60
Bleachery Burlap...	2.50	@	3.00
Scrap Burlap—			
Foreign	1.55	@	1.65
Domestic	1.25	@	1.40
Scrap Sisal.....	1.25	@	1.40
Scrap Sisal for Shredding	1.75	@	2.00
Wool Tares, Heavy..	1.50	@	1.60
New Burlap Cuttings	2.00	@	2.25
Aust. Wool Pouches.	2.50	@	3.00
Heavy baling bagging	1.70	@	1.85
Paper Mill Bagging..	1.00	@	1.15
No. 2 Bagging.....	.50	@	.70

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints...	.03¼	@	.03½
New White No. 1...	.06¾	@	.07
New Light Flannelettes	.04¾	@	—
Silesias No. 1.....	.04¾	@	—
New Black Silesias..	.03¾	@	.04
Soft Unbleached.....	6.50	@	7.00
Blue Cheviots.....	.05	@	.05¼
Fancy	.03	@	.03¼
Washable	.02¾	@	.03

Cottons—According to Grades—			
Blue Overalls.....	.04¼	@	.05
New Black, soft...	.03¾	@	.04
Khaki Cuttings.....	.03	@	.03¼
O. D. Khaki.....	.04	@	—
Corduroy	.02¼	@	.03
New Canvas.....	.06¾	@	.07¼
B. V. D. Cuttings...	.06¾	@	—

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	—	@	2.75
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	1.90	@	2.00
Miscellaneous	2.00	@	2.25
Twos and Blues.....	1.75	@	2.00
Old Blue Overalls...	1.50	@	—
Thirds and Blues—			
Repacked	1.37½	@	1.75
Miscellaneous	1.25	@	1.63¾
Black Stockings.....	3.90	@	4.00
Roofing Stock—			
No. 1.....	1.00	@	1.10
No. 2.....	.75	@	.85
No. 3.....	.65	@	.70

Foreign Rags

(F. o. b. Boston)

Dark Cottons.....	1.00	@	1.10
Dutch Blues.....	2.65	@	2.75
New Checks and Blues	2.85	@	3.00
Old Fustians.....	2.25	@	2.50
Old Linsey Garments	2.20	@	2.25
New Silesias.....	4.50	@	4.75

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1.	.06½	@	.07
New White, No. 2.	.03½	@	.04
Light Silesias.....	.03½	@	.04
Silesias, No. 1....	—	@	.04½
Black Silesias, soft	—	@	.03
New Unbleached..	.05½	@	.06
Washable, No. 1..	.01½	@	.01¾
Blue Overall.....	.04	@	.04½
Cottons—Acording to grades—			
Washable No. 2....	.01	@	.01¼
New Blue.....	.01	@	.01¾
Fancy Percales....	—	@	.02½
New Black Soft...	.03	@	.03½
New Light Seconds	—	@	.04½
New Dark Seconds	.50	@	.75
Khaki Cuttings—			
No. 1 O. D.....	.03	@	.03½
No. 2 Mixed.....	.02	@	.02½
Corduroy	—	@	.02
New Canvas.....	.05	@	.05½
New Black Mixed.	.02½	@	.02¾

Domestic Rags (Old)

White No. 1—			
Repacked	3.00	@	3.25
Miscellaneous	2.50	@	2.75
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	3.00	@	3.50
Roofing Stock—			
Foreign No. 1....	—	@	1.10
Domestic No. 1...	—	@	1.00
Domestic No. 2...	—	@	.75
Roofing Bagging..	—	@	.65

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.75	@	2.00
Domestic	1.50	@	1.75
Manila Rope.....	—	@	3.50
Sisal Rope.....	1.50	@	1.75
Mixed Rope.....	.75	@	1.00
Scrap—			
No. 1.....	—	@	1.75
No. 2.....	1.00	@	1.25
Wool Tares, heavy..	3.25	@	3.50
Mixed Strings.....	.75	@	1.00
No. 1 New Light Burlap	2.50	@	3.00
New Burlap Cuttings	1.75	@	2.00

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White.	2.25	@	2.30
No. 2 Hard White.	1.90	@	2.00
No. 1 Soft White..	1.75	@	1.80
No. 2 Soft White..	1.30	@	1.40
No. 1 Mixed.....	.65	@	.75
Solid Ledger Stock..	1.45	@	1.50
Ledger Stock, white.	1.15	@	1.20
Ledger Stock, colored	.75	@	.80
No. 1 Books, heavy..	.60	@	.75
Manila Cuttings.....	1.45	@	1.50
Print Manila.....	.45	@	.50
Container Manila....	.35	@	.40
Kraft Paper	.75	@	.80
No. 1 Mixed Paper..	.22½	@	.27½
Straw Board Chip...	.25	@	.30
Binders Board Chip.	.25	@	.30
Corrugated Board...	.50	@	.55
Overissue News.....	.40	@	.45
Old Newspapers.....	.35	@	.40

BOSTON

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.25	@	2.50
No. 1 Soft White..	1.85	@	2.15
No. 2 Mixed.....	.75	@	.80
Solid Ledger Books..	1.30	@	—
Overissue Ledger Stock	1.30	@	1.50
Mixed Ledgers.....	.85	@	.90
No. 1 Books, heavy..	.65	@	.75
No. 1 Books, light...	.65	@	.75
Crumpled Stitchless Book Stock.....	.55	@	.65
Manila Env. Cuttings	1.70	@	1.85
Manila Envelope Cuttings, Extra Quality	1.90	@	2.00
No. 1 Old Manila...	.65	@	.65
No. 1 Old Manila...	.80	@	.90
White Blank News..	1.30	@	1.40
No. 1 Kraft.....	.80	@	.85
Mixed Papers.....	.15	@	.17½
Print Manila.....	.45	@	.55
Container Manilas...	.27½	@	—
Old Newspapers.....	.25	@	.32½
Paper Wool Strings..	.50	@	.65
Overissue News.....	.45	@	.50
Box Board Chips....	.20	@	.25
Corrugated Boxes...	.30	@	.32½
Kraft corrugated boxes	.60	@	.70
Screening Wrappers..	.40	@	.45

Bagging

(F. o. b. Boston)

Manila Rope—			
Foreign	2.65	@	2.75

CHICAGO

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope Cuttings....	1.80	@	1.90
No. 1 Hard White..	1.70	@	1.80
No. 1 Soft White..	1.50	@	—
Ledger & Writings..	.75	@	.80
Solid Books.....	.45	@	.50
Blanks	.90	@	—
Krafts	.45	@	.50
New Kraft Cuts.....	1.10	@	—
Manila Env. Cuts...	Nominal		
Ex. No. 1 Manila...	Nominal		
Print Manila.....	Nominal		
Overissue News.....	.35	@	—
Old Newspapers—			
No. 1 Folded News	.25	@	.30
No. 1 Mixed Paper	.15	@	.20
Roofing Stocks—			
No. 1.....	1.00	@	1.05
No. 2.....	.85	@	—

TORONTO

Paper

Bonds

Direct mill shipment in two-ton lots

No. 1 White	$35.50	@	—
No. 1 Tints	36.50	@	—
No. 2 White	25.50	@	—
No. 2 Tints	26.50	@	—
No. 2 Golden Rod..	27.50	@	—
No. 3 White	21.00	@	—
No. 4 White	15.00	@	—
No. 4 Tints	16.00	@	—
No. 4 Golden Rod..	17.00	@	—
Direct mill shipment in three-ton lots			
No. 5 White	$10.50	@	—
No. 5 Tints	11.50	@	—
No. 5 Golden Rod..	12.00	@	—
No. 6 White	9.00	@	—
No. 6 Tints	9.50	@	—
No. 6 Golden Rod..	11.00	@	—
No. 7 White	8.00	@	—
No. 7 Tints	8.50	@	—
No. 7 Golden Rod..	10.00	@	—
Book—			
No. 1 M. F.	$7.00	@	—
No. 2 M. F.	6.50	@	—
No. 3 M. F.	5.25	@	—
No. 1 S. C.	7.25	@	—
No. 2 S. C.	6.75	@	—
No. 3 S. C.	5.75	@	—

Coated Book & Litho

Ton Lots (resale)

No. 1	$12.00	@	—
No. 2	10.25	@	—
No. 3	8.90	@	—
Coated tinted	13.00	@	—
Wrapping—delivered—			
Rag Brown.....	4.85	@	5.25
White Wrap.....	4.00	@	—
"B" Manila.....	4.90	@	6.15
No. 1 Manila.....	5.50	@	6.90
Fiber	5.50	@	6.90
Kraft No. 2.....	5.50	@	6.90

(F. o. b. Cars, Toronto)

News per ton—			
Rolls (contract)...	46.00	@	—
Sheets	54.00	@	—

Pulp

Ground wood.....	29.50	@	—
Bleached sulphite....	54.00	@	—
Unbleached sulphite..	44.00	@	—
Kraft	50.00	@	—
Soda	51.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

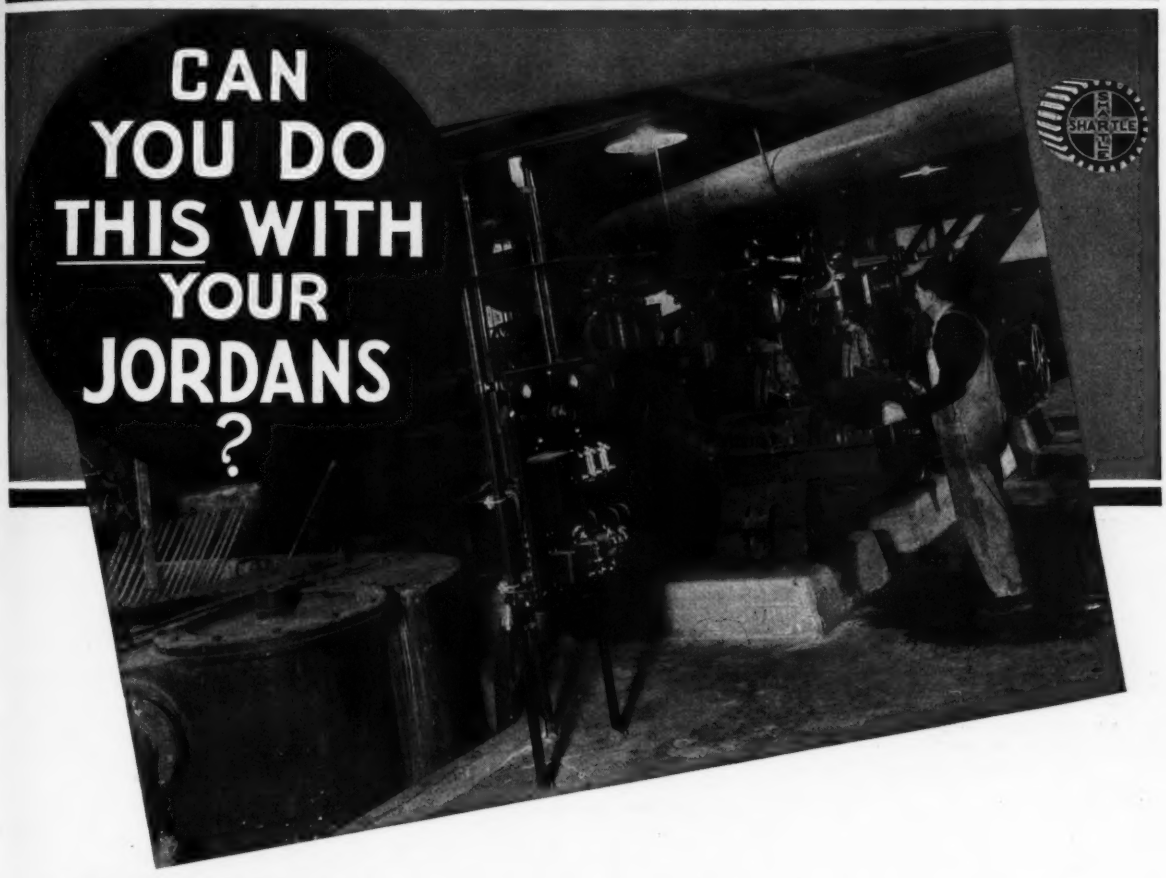
Shavings—			
White Env. Cut...	2.15	@	—
Soft White.....	1.90	@	—
White Blk. News..	1.25	@	1.10
Book and Ledger—			
Flat Magazine and Book Stock (old)	.70	@	—
Light and Crumpled Book Stock.	.60	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut..	1.35	@	—
Printed Manilas...	.45	@	—
Kraft	.95	@	—
News and Scrap—			
Strictly Overissue..	.50	@	—
Strictly Folded....	.45	@	—
No. 1 Mixed Paper..	.30	@	—

Domestic Rags

(Price to Mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.06½	@	.06¾
Fancy Shirt Cuttings	.02¼	@	.03

CAN YOU DO THIS WITH YOUR JORDANS ?



This may look like a complicated piping system, but it isn't. What you see is all the agitating and pumping equipment needed to supply two board machines, each with four kinds of stock.

Take the pump in the foreground, for example. It agitates stock in a chest 12x20x14, pumps 20 tons to the jordan and, though it has a 15 H. P. motor, uses but 9.8 H.P.

This battery of four Miami No. 2 jordans in a 100 ton combination board mill is a good example of what can be accomplished with a scientifically arranged piping system.

The piping in this installation is so designed that the filler stock, the top liner, the under liner, or the back liner can be delivered to any jordan in the series . . . and from that jordan, thrown to any one of the four stock chests. That, gentlemen, is flexibility . . . and with such flexibility comes increased efficiency.

Consider what such a modernized piping arrangement would mean in your mill . . . for pressure jordaning, for example. You could pump the stock direct from the combination agitator and pump to the inlet of the jordan. And from the jordan, it could be thrown to the machine chest.

Modernize your jordan piping arrangement . . . make it more flexible. Shartle Brothers will show you how. Shartle Bros., Middletown, O., Division of the Black-Clawson Co.

SHARTLE BROS.

PROPOSALS

INVITATION FOR PROPOSALS FOR THE PURCHASE OF THE UNDERTAKING, PROPERTY AND ASSETS OF LAKE SULPHITE PULP COMPANY LIMITED

IN THE SUPREME COURT OF ONTARIO

BETWEEN:

THE ROYAL TRUST COMPANY, Plaintiff,

—and—

LAKE SULPHITE PULP COMPANY LIMITED, Defendant.

Pursuant to an order of the Honourable Mr. Justice MacKay made the 10th day of March, 1939, offers are invited by the undersigned Receiver and Manager of Lake Sulphite Pulp Company Limited (hereinafter called "Lake Sulphite") for the purchase of all the undertaking, property and assets of Lake Sulphite now comprised in and subject to the security and charge of a certain indenture dated as of the 1st day of December, 1937, and made between Lake Sulphite and The Royal Trust Company, as trustee, to secure an issue of $1,250,000. principal amount of Ten Year 6% Convertible Notes of Lake Sulphite, and all other assets in the possession or under the control of the said Receiver and Manager.

Without limiting the generality of the foregoing the said property and assets include

1. Rough pulpwood situated in various areas adjacent to Nipigon Bay, Ontario, estimated by the Receiver and Manager at 120,000 cords less any quantities from time to time disposed of in the ordinary course of the receivership.

2. Cutting rights under agreement between Lake Sulphite and the Ontario Government dated March, 1937, (covering areas in the Thunder Bay District of approximately 2,200 square miles) together with camps and supplies, logging equipment and river improvements.

3. Lands and premises at Red Rock and Nipigon, Ontario, including partially completed mill buildings, townsite development, completed inn and lodges and partially completed dwellings, dock and water lots, construction camp buildings, construction supplies stores and equipment.

4. All the issued capital stock of Nipigon Corporation Limited which owns a groundwood pulp mill at Nipigon, Ontario, and has cutting rights from the Ontario Government under agreement dated January 30, 1926, covering area of approximately 1,400 square miles adjacent to the limits of Lake Sulphite.

Intending purchasers are advised that they should communicate with the undersigned Receiver and Manager who is authorized to conduct negotiations with prospective offerors with a view to developing definite proposals. Intending offerors are requested to submit their offers not later than April 17th, 1939.

Full particulars of the property and assets, the subject of the sale and information as to existing contracts, claims of creditors claiming to have security in priority to the said Ten Year 6% Convertible Notes and information as to matters which should be provided for in any offers to be submitted may be obtained on application to the undersigned at his offices, 69 Yonge Street, Toronto, or 507 Place d'Armes, Montreal, Quebec.

Dated at Toronto, this 10th day of March, 1939.

George S. Currie, C.A.,
Receiver and Manager.

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